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LANDSCAPE management

INSIDE

ON THE COVER: OCTOBER BRINGS FULL FALL COLOR TO MAPLE TREES AT LONGWOOD GARDENS IN KENNETT SQUARE, PA. PHOTO BY L. ALBEE, COURTESY OF LONGWOOD GARDENS.

COLUMNS

2 OPENING SHOTS
7 ASK THE EXPERT

DEPARTMENTS

8 HOT TOPICS
65 INFO CENTER
65 SUPPLIERS CORNER
66 PRODUCT REVIEW
68 TALK BACK
69 EVENTS
72 CLASSIFIED
75 AD INDEX
76 GRAB BAG

FEATURES

10 COVER STORY: MEXICAN LABOR MOVES IN
For laborers in the U.S. green industry, employment is often seasonal, hours are long and hot, and the only language they have to speak is 'the language of work.' First in a series.
RON HALL

14 LM REPORTS: TRENCHERS/BACKHOES
These workhorse machines save you time and money provided you match the right machine to the right job.

16 CASH IN ON LOW COST TRAINING PROGRAMS
Money spent on employee education programs can mean happier, higher-skilled and more productive workers.
JAMES E. GUYETTE

20 WHEN THE SNOW FLIES, BE A GOOD NEIGHBOR
Unforeseen surprises during a snow event happen all the time. Preparation and friendship between competitors are keys to uninterrupted service.
JOHN ALLIN

22 NEW FORMS OF NITROGEN
Nitrogen is available in many forms: totally soluble or slowly available to the plant; organic or inorganic; high or low salt index. All of these forms have their own characteristics and can have very different effects on plant growth.
BILL KNOOP, PH.D.

25 GUIDE TO WEED IDENTIFICATION
Presented in a user-friendly format, this weed identification guide is designed to make monocot and dicot weed identification easy and accurate.

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Why is 'labor' a dirty word for many U.S. workers now?

RON HALL
Senior Editor

I was 15, and I really wanted that first job. Dad said that when I got my driver's license he would give me his '51 Ford as long as I paid for the gas and insurance.

So I got a job on one of the family truck farms that ringed our one-traffic-light Ohio town. Most of us kids got our first jobs hoeing and then picking vegetables like peppers, cucumbers, egg plants and melons. We were a steady and cheap source of labor for local farmers. And there were lots of migrant Mexican workers, too.

The migrants came each summer. They came in pickup trucks with Texas license plates. They lived in wooden shanties at the end of a dirt lane on the adjoining farm where they also worked. These were families—dad, mom, kids and all.

I remember a lot about those summers, my school workmates, and the Mexicans who earned my respect as steady and reliable workers.

But my strongest memories are of the work itself. The afternoon sun baked the loose, sandy soil beneath my feet, and the long rows of half-grown plants seemed to stretch to the horizon. The weeds grew more stubborn as the day wore on. The hoe in my hands made itself heavier.

I remember the chug-chug-chug of the ancient John Deere farm tractor. It said the boss was coming over the top of a sand ridge. The routine was always the same. Mr. Nichols, the farmer, would: (1) slowly climb off his tractor, (2) walk down a row we'd just finished hoeing, (3) bend down to yank out a missed weed or two, and (4) start yelling.

Always he bellowed at one of us school kids rather than at the any of the Mexicans who worked shoulder-to-shoulder with us. Their rows were cleaner. Always.

I am not making fun of Mr. Nichols, wherever he is. For all his huffing and puffing, he was fair and honest with us. I'm writing this, in part, to explain my bias toward the Mexican worker. You'll notice it in the cover story that I, with help from fellow editors Jerry Roche and Terry McIver, authored in this month's issue.

These Mexican workers—some of whom became friendly, but never friends—taught us students a few things about work: about putting a razor's edge on our hoes so that we could stand straight and flick and slice the weeds from beneath the vegetable plants rather than bending over and pounding them out; about wearing hats, trousers and long-sleeved cotton shirts rather than shorts and going shirtless; about drinking hot coffee—the hotter the better—in the heat of the day rather than cold sodas.

But mostly they taught us by example:

Keep working.

Get the job done cleanly.

These are traits that many of them still possess, and demonstrate as laborers in the United States. That's why the U.S. green industry and the Mexican worker have a lot to give each other. It's not a perfect fit; there are problems; but on balance it works.

Which is more than I can say for too many healthy young people in our country. They seem to think that being a laborer, even as a first step toward a career, is beneath them.

I've got news for them: it's probably not.

Comments? Questions? Phone Ron at (216) 891-2636, **fax him at** (216) 891-2683 or **e-mail him at** 75553.502@compuserve.com. **LM**

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When the question is how to work smarter, Kubota gives you multiple choices!

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Both the B-20 and L-35 feature a loader-integrated reinforced frame that withstands rigorous work . Loader operation is simplified with a single-lever control, and the durable back-hoe can be attached or detached in just a few minutes without the use of any tools. For even more versatility, a Rear-PTO and 3-point hitch capacity allow you to till, scrape, mow, and more.

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The Merits of Merit

We are thinking of using Merit insecticide for grub control. Our question is, how late in the season can we use it? Secondly, how critical is post-watering? Many clients don't water as they are instructed, so what should we expect?

—PENNSYLVANIA

A representative from Bayer suggests that Merit can be applied from late July through mid-August—with irrigation or post-watering. Products such as Dylox, Triumph or Oftanol can be used after August 15th.

If the treated area cannot be watered or irrigated after treatments, Bayer representatives suggest applying the product during early spring to early summer, as the results depend on the amount of rainfall received.

Merit is a good product, like many other insecticides. Most products, however, require post-watering to move the product from the turfgrass surface to the thatch/soil interface area where grubs feed. Without water, the results may vary.

Read and follow label specifications for best results.

Treating fireblight

Mountain ash plants in some of our clients' properties are not looking good. Some terminal branches with discolored leaves are dying back. On some branches, leaves were completely eaten by some insects, but there are no insects now. Any idea on the problems and how to control them?

—NEW YORK

The first problem of discolored foliage appears to be related to a disease called fireblight, which is caused by a bacterium. Affected branch terminals can be killed and remain slightly bent like an inverted "u." This symptom—referred to as "shepherds crook"—is typical of this disease. Often, the leaves on affected branches remain attached even during winter. Similar problems can be found on many other plants in the rosaceous family, including plants such as mountain ash, apple, crabapple, cottonester, pyracantha and pear.

To manage the fireblight, consider treating the susceptible plants with antibiotics such as streptomycin during early spring, starting when flowers bloom. Repeat treatments at least two to three times to prevent further spread of the disease. Also, affected branches should be pruned about one foot below the discolored area to help minimize the disease spread and reduce inoculum.

Prune during dry periods, and disinfect the pruning tools in rubbing alcohol, Lysol or Clorox between cuts to minimize the disease spread.

The other problem where leaves were chewed off appears to be caused by mountain ash sawfly. Treat foliage about two weeks after the petals fall and again in two weeks with insecticides such as Sevin, Dursban, Orthene, M-Pede or Tempo.

Read and follow label specifications for best results.

Meals for mealys

We maintain a number of large commercial properties that have many annual and perennial flowering plants. Some, like impatiens, coleus and other succulents, have insect problems. The insects are white in color and generally found in the area where the leaves are attached to the plant. What are these, and how can we get rid of them?

—NEW JERSEY

From your description, they appear to be related to an insect called mealy bug. These insects are white, have a woolly cover and appear at the nodal region (where leaves are attached to the stem). They are soft and generally hidden from bright sunlight.

While feeding, these insects suck the plant sap and secrete honeydew from their last body segments (read end). This honeydew is sticky and can support a secondary fungi called sooty mold.

Sooty mold is black and grows on leaves using the sugar from the honeydew. The mold indirectly affects the overall health of plants by reducing sunlight.

To manage mealy bugs, consider using an insecticide such as Tempo or Dursban. Start treating when you see the insect and repeat as necessary.

Read and follow label specifications for best results. **LM**

Brittany, SR 5100 best of fine fescues

Brittany and SR 5100 were top-scoring cultivars in 1995 in the National Turfgrass Evaluation Programs's fineleaf fescue test. Both are hard fescues, Brittany from Lesco and SR 5100 from Seed Research of Oregon.

The mean score for both cultivars was 5.5.

Actually, the high scorer in the test was PST-44D, an experimental cultivar from Turf-Seed, which averaged 5.6 across 23 locations in the United States.

Fifty-nine cultivars, including 36 that are commercially-available, were scored. LSD for mean scores was 0.2.

Within 0.1 LSD of 5.5 were Discovery, Treazure, Tiffany, Bridgeport and SR 3100.

Tops among creeping red fescue cultivars was Shademaster II, while Discovery was best among the hard fescues.

For additional information on this and other NTEP reports, contact Kevin Morris, BARC-West, Building 002, Room 013, Beltsville, MD 20705; phone (301) 504-5125, fax (301) 504-5167; e-mail kmorris@asrr.arsusda.gov.

NTEP survives; industry thanked

The National Turfgrass Evaluation Program will receive a 10 percent increase in federal government funding for Fiscal Year 1997, according to national program coordinator Kevin Morris.

Money available through the U.S. Department of Agriculture's Agricultural Research Service (USDA-ARS) increases from $50,000 this year to $55,000 next year. This news came on the heels of a threat to completely close down funding of the NTEP earlier this year.

"As a result of the overwhelming response from the turfgrass industry, the money was included in the USDA appropriations legislation by the appropriate Congressional subcommittees and signed by the President," says Morris.

"The NTEP wishes to thank all those who wrote or called the USDA and/or their Congressional representatives," he further notes. "The USDA-ARS received more letters and calls about this one issue than any other in recent history. Your efforts did not go unnoticed!"

The NTEP said in a press release that it acknowledges the efforts and contributions of the Golf Course Superintendents Association of America (GCSAA), the Turfgrass Producers International (TPA) and the Georgia Agribusiness Council, which used their resources to emphasize the importance of the NTEP to key Congressmen.

The NTEP is a turfgrass research program that tracks the regional adaptability of existing, new and experimental turfgrass cultivars. Individuals and organizations can subscribe to the NTEP for less than $50 per year. For more information, call the NTEP at (301) 504-5125.

TOP SCORES BY TEST SITE

(Commercially-available cultivars)

Griffin, Ga. (high soil pH):	SR 3100 (5.4), Aurora with endophyte (5.2), Osprey (5.1)
Griffin, Ga. (low pH):	SR 5100 (3.6)
Urbana, Ill.:	SR 3100 (6.4), Tiffany (6.3)
Carbondale, Ill. (full sun):	Brittany (5.6) SR 5100 (5.4), Tiffany (5.3)
Ames, Iowa:	Discovery (6.1), Treazure (6.1), Victory (6.1)
Manhattan, Kans.:	Shademaster II (6.9), Brittany (6.7), Tiffany (6.3)
Lexington, Ky.:	Shademaster II (7.7), Jasper (7.4)
Baton Rouge, La.:	SR 5100 (4.4)
Orono, Me.:	Discovery (7.8), Darwin (7.6), Ecostar (7.4), Scaldis (7.4)
Beltsville, Md.:	SR 3100 (7.5), Reliant II (7.5), Nordic (7.5)
Silver Spring, Md. (dense shade):	Discovery (5.8), Osprey (5.7)
Sharpsburg, Md.:	Brittany (6.2), Sandpiper (6.1)
Amherst, Mass.:	Quatro (6.0), Discovery (5.2)
East Lansing, Mich.:	Rondo (6.1), Flyer II (6.0)
Columbia, Mo.:	Shademaster II (4.9)
North Brunswick, N.J.:	Shademaster II (6.9), Tiffany (6.7), Discovery (6.6)
Adelphia, N.J.:	Discovery (6.3), SR 3100 (5.7), Seabreeze (5.6)
Columbus, Ohio:	Nordic (7.6), Spartan (7.6), Discovery (7.5), Reliant II (7.5)
Stillwater, Okla.:	SR 5100 (4.5)
University Park, Pa.:	SR 3100 (7.7), Discovery (7.6), Reliant II (7.3)
Kingston, R.I.:	SR 3100 (6.3), Opsrey (5.9)
Blacksburg, Va.:	SR 5100 (5.3), Brittany (5.2), Tiffany (5.2)
Pullman, Wash.:	Brittany (6.4), Tiffany (6.4)

'Brownfields', a new opportunity?

Certain plants can remove heavy metals from contaminated industrial soils. Is this a valuable new service that the green industry can supply? There's $2 billion in federal funds to clean up these 'brownfields.'

by JAMES E. GUYETTE / Contributing Editor

Landscape contractors seeking other revenue streams can investigate the possibility of cleaning up abandoned industrial sites. The green industry can help in this new field because selected plants can absorb lead and other heavy metals from contaminated soils.

These polluted areas, "brownfields," were once home to heavy duty manufacturing operations. They're a blight on the landscape and a bane to urban planners throughout the United States. It's impossible to attract new development to these sites because of concerns over what lies beneath them.

"We think a significant number of these sites can be treated using metal-accumulating plants," says Dr. Burt Ensley, president and chief executive officer at Phytotech, Monmouth Junction, N.J. "We expect to see this growing into a large market within the next two years."

Dozens of plant species can be used, including mustard plants, sunflowers, Alpine pennycress, brassica and Indian mustard. The company recently presented a scientific paper on the project at a hazardous waste conference in Birmingham, Ala.

"The results show the Indian mustard plant's effectiveness in extracting lead from contaminated soil in our recent field trials at an abandoned industrial site in Trenton," says Phytotech's Dr. Michael Blaylock.

"The results of our studies clearly show the potential of using green plants to clean up soil and water contaminated with heavy metals. It should enable us to develop an efficient, cost-effective and environmentally compatible approach to address the brownfields problem throughout the U.S."

There is more to the program than just sowing seeds, says Ensley. His company will be sharing the patented technology with interested green industry operations. "There is a large amount of knowledge in this," he points out. "I could send you our best seeds tomorrow and you wouldn't be able to remove lead with them," he explains. "We will provide the landscape industry with the *experts* to show them how."

Known as phytoremediation, the process uses specially selected plants to remove heavy metal contaminants from the soil and concentrate them in the stalks and leaves which can easily be harvested and destroyed, thereby removing the threat to the environment.

"Phytoremediation offers us a way to reclaim many of our urban sites lost to toxic contamination and turn them back into an integral part of the community and local economy," Blaylock says.

The impact of the project, which began in 1989, had been eagerly awaited by community leaders, academic researchers and public officials. "We're very excited about the results that Phytotech has achieved," says Karen Waldron, brownfields coordinator at Trenton's department of housing and development. "This demonstration is a successful example of cooperation between private industry, local community and civic officials, and it can serve as a model for other brownfield sites," she adds.

So far, $1.4 billion has been spent on brownfield cleanups, and Ensley predicts that $500 million can be applied to using plant materials rather than concentrating efforts on actually removing the soil.

Using plants at this Trenton site, Phytotech reports that approximately 70 percent of the treated area has been cleaned to the New Jersey regulatory limit of 400 parts per million of contaminates in one growing season.

"We have commercial applications for this," he says, pointing out that President Clinton recently called for a $2 billion effort to clean up brownfields, and that he challenged American businesses to reclaim blighted industrial sites like the one in Trenton.

"There's a number of plants that can do this," Ensley stresses. "Our intention is to show people how to do this."

For more information: Phytotech, 1 Deer Park Dr., Suite I, Monmouth Junction, NJ 08852; phone (908) 438-0900; fax (908) 438-1209.

Mexican Labor *moves in*

by RON HALL / Senior Editor

The face of U.S. labor is changing, and American industry must change with it. One of the biggest shifts in the past decade has been the addition of several million additional Hispanic workers to the labor market. They're here to stay. In fact, more are probably coming, in spite of the 1996 law aimed at illegal immigration. The Census Bureau says that by the year 2050, the Hispanic percentage of the U.S. population is expected to double. About one in five Americans will be of Hispanic—mostly Mexican—heritage by then.

In this issue, we meet Joe Loyet and find out what Mexican labor means to his Loyet Landscape Services in St. Louis.

Next month, you'll meet labor contractor Robert Wingfield, the green industry's Texas pipeline to Mexican labor. You'll also learn about the legal implications of hiring Hispanic labor.

Our final report in January will focus on the successes and failures of using Hispanic labor by some of the nation's biggest and brightest landscape contractors.

For laborers in the U.S. green industry, employment is often seasonal, hours are long and hot, and the only language they have to speak is 'the language of work.'

Hugo Martinez travels light. He left El Paso late yesterday afternoon with just a small nylon bag containing a change of clothes and a few personal items. He keeps his bag protectively wedged between his Adidas-clad feet beneath the plastic seat in the Greyhound station on South Lamar Street in Dallas.

Hugo is only about 5'4", no more than 120 pounds, and 37 years old. But he does a younger and bigger man's work. He's headed for Ohio where he works for a family-owned nursery/landscape company, usually 10 hours a day for about eight months. Last season, he tended several acres of nursery stock . This season, he says he will be mostly mowing and trimming.

He's catching the 12:45 p.m. bus, and he'll arrive in Cleveland late the following afternoon. Somebody from the landscape com-

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Loyet checks every property his company maintains at least once a week. He confers with workers like Josue 'Joe' Sanchez almost daily.

pany will drive into the city to meet him and take him to the apartment he'll share with several other Mexican workers.

A changing labor market

Need reliable laborers for your mowing crews or to tend your golf courses?

Find yourself a Hugo, and a few others just like him. Get some Hispanic workers who are used to working outside on a farm. On a ranch. In an orchard. Mexicans. Guatemalans. Nicaraguans.

"You get two things with Mexicans," says Robert Wingfield, a Dallas-based labor contractor. "Mexicans show up for work every day. If you just got the increased reliability, you'd be ahead of where you are. But you're also going to get anywhere from 10 to 30 percent more production."

Okay, so that may not be the politically correct way to put it. But what's politically correct about the hot, long hours demanded from a landscape laborer? Hispanics, because of their willingness to work long hours at mostly seasonal employment, are replacing the industry's traditional labor mainstay—the young, white, male U.S. worker.

A 1996 LANDSCAPE MANAGEMENT magazine survey discovered that 20 percent of green industry operations now employ at least some "non-English speaking" people. Fourteen percent of landscape contractors told us that their labor workforces are now predominantly "non-English-speaking." (By contrast, about 12 percent are mostly high school or college-age U.S. youths.)

Increasingly, the green industry is employing Hispanics—mostly Mexicans—as its labor of choice.

Consider St. Louis. Less than a decade ago, a Mexican worker on a landscape crew in St. Louis was rare. Now, some of the top landscape contractors in that marketplace don't feel like they can compete without them. They've been feeling that way since a branch office of the Brickman Company, one of the nation's largest landscape companies, began using Mexican workers on its maintenance crews. That opened competitors' eyes, especially when they saw how these crews produced.

Out of necessity

"Our back was against the wall when we brought in our first Mexicans. We just could not keep a stable labor force on the maintenance end," remembers Joe Munie, founder and president of Munie Outdoor Services in nearby Belleville, Ill. "We had to seek a viable workforce or we were going to have to look at backing out of that."

Joe Loyet, who started Loyet Landscape Maintenance 12 years ago, adds: "It was a problem getting people to come to work every day. I knew we had to do something different." That something, of course, was to find Mexican laborers for his company. Contacting Robert Wingfield, a Dallas labor contractor, he did just that.

At about 5:30 a.m. every day, Loyet's employees begin arriving at the company's office/maintenance building in a rural area just south of St. Louis. The Mexicans come in small groups because most of them share three leased house trailers in a nearby trailer park. Most also don't have U.S. drivers licenses.

Each employee checks and loads his own equipment onto the trucks. Mexicans can be picky about the condition of their mowers, says Loyet. They want their mowers to operate at peak efficiency so that they

cont. on page 13

Getting off to a good start

Joe Loyet of Loyet Landscape Maintenance uses the following procedure to welcome each Mexican worker to his St. Louis-based company:

- Greet the new hire at the downtown bus station.
- Drive the new employee to a Denny's for a meal, where Loyet and the new employee get to know each other better.
- Proceed to Loyet's office/maintenance facility just outside of St. Louis. Here Loyet checks, photocopies, and files the documents that establish the Mexican worker's identity and employment eligibility. Loyet and the worker fill out a Form I-9, the Employment Eligibility Verification that must be completed for each new employee.
- Provide the new hire with a company work uniform and hat.
- Drive to a K-Mart store and provide the employee with boots and, if needed, work pants.
- Take the new hire to one of the three adjacent house trailers that Loyet's company leases just outside of the city. The employee will share the trailer with several other Mexican workers. Allow the employee to rest the remainder of the day. "I tell him, 'Take a siesta, mi amigo, the other workers will be back later.'"
- After the first day of work, Loyet advances the new employee $50 cash to tide him over until payday.

Superintendents like Hispanic workers, too

Superintendent Bruce Williams has employed Hispanic laborers for more than 20 years at Bob-O-Link in Highland Park, Ill. His dad, Bob, first employed them at the course in the 1960s.

Bruce Williams says their willingness—and in some cases, their preference—to work a short year makes them a good fit for seasonal golf course work.

"We have a seven-month need for labor," explains Williams. "It's difficult to find [local] people to work only seven months of the year. Many [Hispanics] come up from Mexico or Texas, and work from April 1st until October 31st, earning a very livable income. Then they return to their families." Ten of his 18 crew members are Hispanic.

Hector Carrera mows the Bob O' Link fairways. He is one of a family of four employed at the club, which has employed three generations of the same family.

Williams says that Hispanic workers "love being outdoors, being with the soil. They're good at it, and they don't mind working whatever hours the job requires."

Some of the workers live in housing on the course.

"In the late 1970s, we noticed that it was hard for them to find affordable housing near the golf course," says Williams. "The distance they had to drive to get to the golf course was considerable. We built a four-bedroom dormitory where we house eight of our seasonal workers. They don't have to deal with trying to lease an apartment for seven months, and it makes it easier for the seasonality of the job."

Family ties strong

Hispanic people "want to work," says Randy Wahler of Knollwood Club in Libertyville, Ill., which employs 12 Hispanics in its 18-person crew. One has worked at the course for 18 years.

"All the management books will tell you not to hire friends and relatives, but we have been successful in dealing with referrals to cousins, nephews and sons of past and present employees," says Wahler.

"It's good to get into a good family," adds Wahler, since the families stick together and support one another. Wahler finds his Hispanic employees by word-of-mouth or through family networks.

"Hispanic people are very close," says Wahler. "They're very good people. They share the same work ethic."

No language barrier

While some speak good English, many do not. Williams says he's fortunate that one foreman can handle all verbal, one-on-one communications. Williams also knows some Spanish himself.

Wahler does not speak Spanish, so he leaves most communication duties to his Hispanic assistant and foreman, both of whom are bilingual. Only three workers do not know any English.

"We allow anyone the chance to grow within the operation itself," says Williams. His irrigation technician has been with the course for 18 years. Another Hispanic worker became head mechanic.

The Hispanics' work style might be described as more evenly paced than that of their American counterparts.

"Americans will work quickly, take a break, work quickly, take a break," says Williams. "Hispanics work at the same steady pace, all day long. It's harder to get Hispanic workers to speed up the pace."

Alonso Esquivel top-dresses greens at Bob O'Link Golf Club. An 18-year employee at Bob O' Link, Esquivel is also its irrigation technician.

Sad reality

Without Hispanic workers, Williams says he would have to try to recruit from among high school students who live in affluent neighborhoods surrounding the course. Unfortunately, his experience there has not been encouraging.

Wahler on American youth: "They want easy jobs, making big money. Parents today have spoiled their kids. I don't think they've prepared them for the future."

—Terry McIver

Ignacio Galvan is one of the Mexican workers that Joe Loyet is grooming to be a foreman. Co-worker and crew chief Mark Richardson is in the background.

can put in a full day's work, and earn a full day's pay.

By any standard, Joe Loyet would be considered a progressive employer. He helps pay the cost of housing and, occasionally, buys meals for his workers or hands out phone cards so they can call their families in Texas or Mexico.

"Some of the guys who try to bring Mexicans up here think they can work them like mules; that's not right," he says. "They're human beings, just like me and you. You have to respect them."

Business is business

Even so, Loyet, a normally cheerful and outgoing person, can get serious about business which, for him, means going to bed by 9 p.m. most nights, getting up by 4 a.m. and getting to the office by 5 a.m. "I don't believe in threats or in hollering," he says, "but I tell my guys, 'This is a business and this is the way it's going to be.' A guy who doesn't come to work every day is no good to us. We have to take care of our customers."

While Loyet seems to genuinely respect his Mexican employees, not all of them work out. "I'll go right out to a job site and pick them up, call our accountant and find out how much we owe the guy to that point, pay him and get him out of the system right there," he says. "I'll take him right to the bus station. I'll make sure he gets on it to go home."

His motto is: "Keep them busy, busy, busy; keep them out of trouble."

Says Loyet, "They want hours, 50-plus hours. They're here to work and make money. Most of them send their money home."

They're everywhere

The St. Louis labor marketplace is not unique. Hispanic landscape laborers, long commonplace in California and the rest of the Southwest, are now accepted by the green industry in the nation's heartland too. In fact, just about everywhere in the United States.

Laflamme Services of Bridgeport, Conn., has employed Mexican workers for the past eight years. The company started with four, but now employs about 35, says president Ed Laflamme.

'Some other company will offer them more money and then they're gone,' says Jeff Sanders of Raleigh Turf & Irrigation.

Even though many don't speak English (or, at least, not very well), they "understand the language of work," says Laflamme.

Laflamme, like Loyet, says he can give many of them employment year-round, but most leave early each winter. To get them to return in spring, and to bring other capable workers, some landscapers offer cash bonuses. "I don't know if I could be in business without them," admits Laflamme.

The Brinitzer Design Group of Arlington, Va., employs Guatemalans. Most were displaced by the civil war that raged in their country in the 1980s.

"We employed one Guatemalan as a day laborer. He worked very hard, so when we needed to hire more help, we started hiring his brothers, cousins or friends," says Carroll LeTellier. Now, all but four of Brinitzer's crew are Guatemalan.

"We've been in business for 10 years. For the first six or seven years, we were hiring people who were born and raised in the U.S. It was harder to keep them on year after year," he adds.

Money is #1

What motivates Hispanic workers? Money. If they feel like they're not getting enough hours, or if they're offered more money by another company, they can leave in a blink, says Laflamme. "The only thing that keeps them is the money."

Adds Jeff Sanders of Raleigh (N.C.) Turf & Irrigation: "We have one worker, Salvador, who will go home and get me x number of laborers if we need them, but the loyalty isn't there."

That's why Sanders doesn't, as a rule, try to employ them over the winter. "Some other company will offer them more money, and then they're gone," he says.

Money is, indeed, the only reason Hugo says he's leaving his home in El Paso, which he shares with his mother and two sisters, and travels to Ohio to work for nine months.

Waiting for a bus that's already about 10 minutes late, Hugo says he'll be making $7 an hour with the landscape company, about $1.50 an hour more than he can make in El Paso. Even so, he says he wouldn't leave, except that the hours are steadier in the north, and the man who owns the company is fair.

—Additional reporting by Jerry Roche and Terry McIver.

TRENCHERS / BACKHOES

You save time and money when you have the right machine for the job.

The Allmand Bros. tractor-loader-backhoe is rugged.

Trenchers and backhoes save immense amounts of manual labor.

Laying in-ground electric cables or irrigation pipe, for instance, would be tedious and back-breaking without today's trenching equipment. Because this equipment saves so much labor and time it actually makes these types of projects affordable.

And how would you bust up and remove concrete in preparation for installing a stone walkway without a backhoe? A backhoe is a workhorse, suitable for the rugged digging tasks.

Your task as a green industry manager is to match the jobs your golf course or landscape crew tackles with the proper type and size of digging equipment.

A trencher or a backhoe—even the smallest models—represents a sizable investment for most turf or landscape managers, so it makes sense to match equipment with the tasks for which it's engineered.

Depending on the size and cost of the equipment you're considering and the amount of use you intend to give it, you may want to consider leasing rather than buying. Or, perhaps, sharing costs with a neighboring golf course, grounds facility or a friendly competitor.

Elite Trenchers makes six styles of small disc-blade trenchers.

Gehl trenchers feature a heavy-duty digging chain.

Allmand Bros.
Circle No. 280
(800) 562-1373

The Contractor TLB compact, heavy-duty tractor-loader-backhoe from Allmand Bros. offers the size and maneuverability needed to get into tight areas. Available with three different air-cooled gasoline engine options: 20 or 25 hp Kohler, or a 20 hp Honda. A 20 hp Kubota, water-cooled, diesel engine is also available. The unit's backhoe attachment offers a 2-foot, flat-bottom digging depth of 8'4" and a breakout force of 3,670 lbs.

Darby Industries
Circle No. 281
(800) 344-2472

This full-size hydraulic-drive backhoe is towable behind a half-ton truck. It features 17-foot reach and 6,681 lbs. of bucket break-out force. Built with high-quality hydraulic components and hardened steel bushings at all pivot points. Kohler engine. Optional diesel engine available. Can be towed at highway speeds by light-duty vehicles, without a trailer.

Ditch Witch
Circle No. 282
(405) 336-4402

Ditch Witch built the first compact trencher in the late 1940s and has built and sold more than 50 percent of the world's service-line trenchers since then. Ditch Witch offers the broadest range of trencher models. Models 30-hp and

higher are designed to accept interchangeable work models, adding versatility to a single machine. Also, a complete line of of trenchless technology products.

Elite Trenchers & Concrete Saws
Circle No. 283
(941) 574-1906

Choose from six styles of small disc blade Elite Trenchers: DD6 digs 5 ¾" deep x ¾" wide; DD8 digs 8" deep, 2"to 3" wide; DD10 digs 10" deep, 2"to 3" wide; DD12 digs 12" deep, 2"to 4" wide; ETI 8 Heavy Duty digs 8" deep, 2" to 4" wide; and ETI 10 digs 10" deep, 2"to 4" wide trench. The ETI 8 and ETI 10 come with larger hp engines and ¾" x ¾" rock teeth.

Gehl
Circle No. 284
(414) 334-6615

Gehl's three trencher models can be added to skid loaders. Trenching widths from 6" and depths down to five feet. Heavy-duty digging chain with cutting teeth operating on a durable boom. Trencher attachment side shifts for trenching near buildings or foundations. Gehl also has a backhoe that mounts on the skid loader lift arms.

Glenncorp
Circle No. 285
(501) 239-4796

The GCI-500 trencher is designed to operate on a three-point hitch. The trencher will operate with either a hydrostatic drive or live PTO. The reservoir is built into the frame. The unit comes with a PTO pump and a two-spool control valve. Glenncorp also offers GCI tractor-mounted backhoe that can be operated from the seat of the backhoe, the seat of the tractor or from the ground. Also a GCI tractor-mounted fronthoe (for 75 hp or larger tractor) with remote controls.

JCB
Circle No. 286
(410) 335-2800

JCB says the JCB 208S MiniMaster is the world's first integral skid steer backhoe loader. It combines the digging ability of a 2-ton mini excavator and the loader performance of a 1323 lb. skid steer loader which makes it unbeatable for working in small spaces. Independent hydraulic systems allow various machine functions to be operated simultaneously. The JCB's Series 2 line of backhoe loaders includes 8 machines in the 14- to 17-foot class, 2-wheel and 4-wheel drive.

Melroe's 325 Bobcat features multi-function hydraulics system allowing simultaneous boom dipper and bucket functions.

John Deere
Circle No. 287
(919) 954-6343

Three backhoe models—No. 7 Backhoe for 670, 770, 755, 855 and 955 Tractors; No. 8A for 870, 970 and 1070 Tractors; and 10A for 5000 Series Tractors. No. 7 and 10A feature rigid, 4-point mounting system with more stability, better shock absorption than hitch-mounted systems. No. 7 and No. 8A available with Quik-Tatch system that allows easy hooking and unhooking from tractor. Each model has four buckets to choose from. Digging depths from 7½ to 10 ft., depending on model.

Kelley Manufacturing
Circle No. 288
(219) 255-4746

The Kelley B15A Backhoe, with 8-foot maximum digging depth, features Category I three-point rigid hitch for maximum digging power. Double hydraulic swing cylinders provide double swing power and control with the Kelley exclusive patented Hydraulic Swing Cushioning. Bucket sizes of 9", 12", 15" and 18". Replaceable steel wear bushings at major pivot points.

Kubota Tractor
Circle No. 289
(310) 370-3370

Kubota Tractor's B5520 and B5520A trenchers are built to be used on seven of the company's liquid-cooled, diesel-engine hydrostatic tractors. The trenchers dig to a depth of four feet and feature 15 trench-size combinations. Up/down boom arch is 70 degrees/65 degrees. Auger diameter is 10 inches. Speed is up to 600 feet per hour depending on depth and soil.

Melroe
Circle No. 290
(701) 241-8700

Melroe's new C-Series model of its 325 Bobcat compact excavator features: multi-function hydraulics system that allows simultaneous boom, dipper and bucket functions without a decrease in cycle time; two-speed travel; new joystick with improved metering; half-pitch tracks for smoother ride; increased boom-up and bucket dump/roll-back speed; lower overall height for easier access through doorways; improved hose routings for better protection. The 325 has a maximum digging depth of 99" and reach of 166".

Vermeer Manufacturing
Circle No. 291
(515) 628-3141

Vermeer added a backhoe with a center-mounted operator seat to its tough, reliable V-3550 riding, hydrostatic, rubber-tire trencher. Mounted on the V-3550, the B500 backhoe's bucket has a digging force of 5,978 lbs., and its 12-inch bucket can dig down 68", and rotate up to 126 degrees. A 43.5 hp Deutz engine powers the trencher which can trench depths from 38"-60" at widths of 5"-12". The LM-42 walk-along plow/trencher (43.5 hp Deutz engine) is designed for irrigation and service-line installations; its new V-1150 trencher powered by an 11 hp Honda engine which is handy in areas with narrow, limited access; and its V-5800 trencher powered by a 4-cylinder Cummins 4B3.9 (59 hp) engine. **LM**

Vermeer increased the productivity and versatility of its V-3550 riding trencher with the addition of a backhoe.

Cash in on low-cost

by JAMES E. GUYETTE / Contributing Editor

Money spent on employee education programs can mean happier, higher-skilled and more productive workers. This, in turn, can lead to less downtime, less turnover and fewer workplace accidents (an employee indoctrinated in proper safety procedures is less likely to get hurt).

Pat McGovern, owner of International Data Group in Boston—one of the nation's leaders in corporate training—sets aside an amount equal to 3% of the company's payroll for training each year. However, landscape managers need not budget that much, simply because many low-cost and free training programs are available in this industry. It just takes a commitment on your part and a little bit of searching to locate the best opportunities.

An in-house training program at California's Stockdale Country Club has resulted in an "almost perfect" safety record and a better work atmosphere, says superintendent Corey Eastwood. "You have less damage to the machines and less disruptions of the members," he adds. "We use a lot of courtesy—and that's part of the training."

New workers at Stockdale are personally taught and shown the proper care of each machine by the facility's two mechanics, plus there are weekly training sessions. "We go over the operator's manuals," Eastwood explains. "We take each piece of equipment at a time (to study), and when we get done we start over again."

Because Stockdale is located in a warm climate, most workers stay on throughout the year, which means less turnover. In areas where turnover is a concern, an outside training program may lead to a more motivated and stable workforce.

Just look

The landscape side of the industry is not much different.

"We try to get involved in as many programs as we can," says Ron Wilson, a general manager at Natorp's Landscape, Nursery and Garden Stores of Cincinnati, Ohio. "The safety training has been a tremendous help to the company."

Kate Goewey, Natorp's safety director, says the company gets increased performance and fewer injuries on the job. Ownership is particularly pleased that much of the training has been free or at low cost—and all they had to do was look for it.

Many manufacturers and suppliers are more than eager to provide free training sessions on the various products that they market—just ask. A good place to start looking locally is as close as your community's fire department.

A free session on "fire safety" at Natorp was most enlightening, says Goewey, "because most people do not actually know how to use a fire extinguisher." Goewey adds that any type of safety education will improve the work environment.

The makers of the Bobcat line of equipment conducted free training on their machines, and the workers also got an education on proper chain saw techniques.

The Blount Corporation's Oregon Chain Division markets chain saw replacement parts rather than the whole saw, but they do indeed provide training all over the world.

"We do it for free because a chain saw doesn't know the difference between a log and a leg," says George Ruggles, who heads the Oregon training seminars. "We go through a pretty structured program that many people find beneficial." The two- to three-hour sessions rely on hands-on demonstrations and a graphic video presentation that grips the students' attention. "We don't have much trouble keeping them awake," Ruggles reports.

The ability of the speaker is important, says Goewey, adding that any instructor's program should be reviewed by a top member of the staff before presenting it to the workforce.

Training tips

- Make your seminars part of your work week—pay your people to be there.
- Ask suppliers and other local sources (landscape associations, garden clubs, parks departments and schools) for speakers.
- Have a top member of the staff review the instructor's program before it is presented to the workforce.
- Send employees to training sessions that deal with techniques they can use on the job.
- Explain starting, break and finishing times at the beginning of the session.
- If possible, issue hand-outs and workbooks for each subject.
- Divide sessions into 18-minute (maximum) modules.
- Emphasize basic techniques. Use step-by-step lists whenever possible.
- Engage as many of the trainees' senses as possible (see chart). Hands-on demonstrations and graphic video presentations will keep employees alert.
- Beware of training consultants who offer boilerplate solutions to complex management concerns.

training programs

"Generally, we're familiar with the speakers," Goewey explains. "I either go myself or we ask around. We won't send anyone to hear a speaker sight unseen." A clunker of a class means that "the people will get bored and they won't learn anything."

Pay people

Use some caution in deciding which workers to send to which presentation, she suggests. Make sure they are learning techniques that are germane to their job assignment. Sometimes just one employee can be sent, but be certain that he or she has the verbal skills to adequately impart the lessons learned to fellow employees. "They will bring that information back to the crew so they don't lose a whole day of work," she notes.

The workers should understand that training is a priority and not just free time. "Make your seminars part of your work week," advises Goewey. "That means you will pay your people to be there. Although it is common for businesses to use the excuse that the seminar benefits the staff's personal professional development, and therefore you're actually providing an educational service to your employees, let's face it—training benefits your business and that's why you offer it."

Making the choice to offer a training program to employees can be a tough decision for management, simply because of the nature of the business: you're either too busy or else you're laying people off. It's therefore important to be selective in the kind of training program you offer.

Goewey recalls a program in electrical hazard training that cost a whopping $700 per person. "Can I send 12 people to that? No. Can I devote the time to that? No." A tree crew foreman was sent, and he reported back what was learned.

Beat the bushes

Programs offered by the cooperative extension service rate high with Goewey: "That's wonderful. It's a minimum fee and they bring in the experts—*they* pay for the experts and there's nothing wrong with that." Gardening procedures, pruning skills and other techniques are taught in an easy-to-understand style by masters in the field. "They're hiring the experts—your work is done; all you have to do is send your people."

The Red Cross is big on safety seminars, as might be expected, but other sources can offer useful education. "We make great use of the Bureau of Workers Compensation seminars," says Goewey. "You've already paid for that in your state" via the fees being charged the business. Sessions are offered in subjects such as ergonomics, power equipment operation and proper use of hand tools.

RETENTION OF TRAINING INFORMATION, BY METHOD

Reading	40%
Writing	40%
Listening	50%
Seeing	50%
Doing	80%

Beat the bushes to find quality instructors. Ask your suppliers and other local sources, such as landscape associations, garden clubs, parks departments and schools. Some speakers do it for free; others charge, but find out any fee ahead of time before signing up.

If you are a company owner, make sure you are committed to the learning process—especially if you have concerns over management-type issues. "We can educate groups of workers in a relatively short amount of time, but the real change happens with the management," says Don Willig, a senior consultant with Management Concepts Inc. of Dayton, Ohio.

Many times an owner will be convinced that he or she needs to be all-knowing and in on every decision and technique discussed, but eventually to be successful they have to hire other managers to get the job done. "At some point they have to bite the bullet and get someone to help them or else they will compromise their whole business opportunity," Willig warns.

An owner who has prepared a business plan ("What do we want to be when we grow up?") is better able to deal with outside training. Also, ask colleagues in the business to help find experienced trainers. Beware of a training company that offers boilerplate solutions to complex management concerns.

"No two organizations are typically the same, so you want flexibility and experience in this industry," says Willig. "There are unique things in the green industry that need to be recognized." Steer clear of a training firm that charges a high up-front consulting fee, he adds.

Each staffer at any given company can be made better by receiving advanced training, Goewey believes. "The benefits of a training program are well worth it. In our business, we must be teachers as well as sales people. Not only do we assist customers with selection, we have to help them keep those selections alive and growing." **LM**

'New' forms of nitrogen

by BILL KNOOP, Ph.D. / Technical Editor

Soluble nitrogen can be applied through an irrigation system or sprayer.

Without an adequate supply of nitrogenn the quality of any landscape will suffer, especially the turfgrass.

Nitrogen is available in many forms: totally soluble or slowly available to the plant; organic or inorganic; high or low salt index. All of these forms have their own characteristics and can have very different effects on plant growth. All plants prefer the nitrate or inorganic form of nitrogen, and have little use for the other chemical form of nitrogen, the ammonical form. The third chemical form, organic nitrogen, is not used directly by plants. When a fertilizer containing nitrogen in the organic or ammonical form is applied to the landscape, it must be changed to the nitrate form before it can be used by the landscape. These changes are accomplished in the soil by bacteria. You do not need to add anything to any soil for these conversions to take place. Be assured that the right bacteria are always available. Examples of these nitrogen forms are found in Table 1.

Those fertilizers listed in Columns A & B are all soluble. So is the organic form urea found in Column C. When applied to the landscape, the nitrogen they contain goes freely into the soil water solution that surrounds the roots of the plant. If the soluble nitrogen is in the nitrate form, it may enter freely into the plant.

Plants do not always need a lot of nitrogen at one time. A slow, steady growth rate is better than a quick, fast burst of growth, as research has shown.

Soluble materials have relatively high salt indexes. High-salt fertilizers can burn plants. If soils and/or irrigation waters already have a high salt level, avoid using these high-salt-index fertilizers.

One fact makes a soluble nitrogen material desirable: it can be applied to the landscape in water, through an irrigation system or sprayer. This is easier than using bagged fertilizer and a spreader.

Most slow-release materials are great nitrogen sources for the landscape, but they must be applied dry. The best nitrogen source would meter out the nitrogen slowly, but would be applied through an irrigation system or by using the tank-truck-hose-nozzle system. The goal of research these past few years has been to find such a material; one that acts as slow-release but can be used in a water carrier system. These new nitrogen materials are now coming to market.

Urea is completely soluble, but through chemistry, it can be changed into forms that have entirely different characteristics. Not only are they slowly soluble in that they supply nitrogen at a low, steady level, they can also use water as a carrier. Perhaps "slow-release" is a better term for these new materials. The term that seems to be the most appropriate is "solution slow-release nitrogen."

Coron and similar products are the next generation in liquid fertilizers. Clear liquid fertilizers add versatility to fertilizer programs. Coron is a low-salt-index fertilizer that contains slow-release nitrogen (70% CRN). Being a polymethelene urea-based fertilizer combines the ease of handling liquids with reduced clippings and increased root growth that is associated with traditional dry slow-release fertilizers.

Injection into the irrigation system is easily handled by storage tanks and injector equipment. Tank-mixing requires little agitation and no pre-mixing to dissolve materials. This makes truck/tank/hose/nozzle systems quicker and easier to use.

Advances in nitrogen chemistry have given us the most ideal form of nitrogen yet. Ease of application, low burn potential and slow feeding make these new materials far superior to all other forms. They are certainly worth trying. **LM**

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When the snow flies, be a good neighbor

Unforeseen surprises during a snow event happen all the time. Preparation and friendship between competitors are keys to uninterrupted service.

by JOHN ALLIN / The Allin Companies

Friendly competition is one sure way to get help when the unexpected and unforeseen events occur during any given snow event.

You never know when you will need to suddenly avoid a car pulling out in front of you, and you end up in a snow bank. Or, you find that you tried to stack that last "push" a little to high, and got the front end of your plow truck hung up in a snow bank. That is when it pays to have kept your competition on friendly terms. They are the people who are out at 3 a.m. doing what you are doing: trying to stay ahead of the storm. They can rescue you from hours of "digging out" when stuck. If you are honest and fair in your dealings with the competition, then they should not mind "helping out" when the need arises, just as you should not mind helping them out.

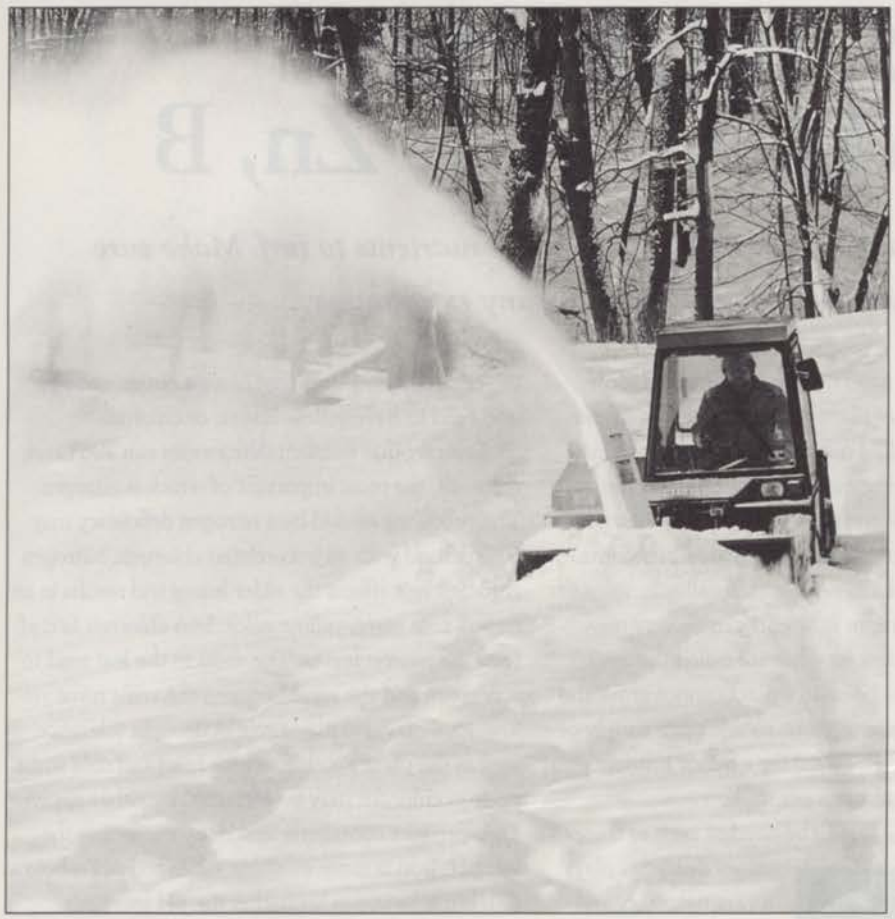
I have even gone so far as to have one of our crews plow a competitor's account when I knew that he had a major breakdown. An unexpected breakdown can cause major problems for the small plowing operation. And while that operator may never have the opportunity to plow one of our accounts to help us out, he might just stop to lend a hand if one of our trucks is stuck.

Most plowing contractors carry at least some spare parts in the cab of their truck. But it seems that no matter what parts you carry, the problems that arise usually require the one part you don't have in the tool box. It can be quite inconvenient when you lose a plow pin and are miles away from the shop, and it is snowing like the dickens. Friendly competitors can loan or sell these type of parts to each other in a pinch. I tell our guys to help out this way when the need arises.

If you don't get to know the guys in the other plow trucks across the street, you can be left scrambling to get your accounts done on time, or worse. It can be very difficult to find a suppler open—and/or nearby—during the middle of the night. And most of us are usually cutting it close during a storm. We want to plow the customers as close to their opening time as possible, so that they are getting the best service possible. customers get a bit testy

Ten guidelines for snow fighters

1. Report for work physically and mentally fit, and properly clothed for any emergency in order to withstand the rigors of the task.
2. Never enter the cab without inspecting the lights.
3. Know your spreading and plowing routes, as well as the performance of the spinner and the life of the plow blade.
4. Be alert in order to avoid guardrails, headers, stalled cars, manhole covers, railroad tracks and mailboxes.
5. Stay calm on the job, even though cars and trucks pass on both sides and tailgate too close for comfort. Anger only multiplies the prospects of coming to grief by accident.
6. Use your radio as briefly as possible, if you have one. Remember fellow workers may need to communicate in an emergency.
7. Shutdown the flow of power to the spreader before attempting to free foreign objects or blockages, if you treasure your fingers.
8. Take the truck and spreader out of gear and set the emergency brakes before dismounting from the cab.
9. Gauge your vehicle speed according to the conditions, or else you may wind up with your truck upside-down.
10. Mind your manners on the roadway; clearly signal your intentions; render assistance to stranded motorists; and remember that it is more blessed to give than to receive.



when they arrive to a snow filled lot, instead of a neatly plowed and accessible parking area. Your own liability problems can get sticky if the lot is not open on time.

Prepare for the unexpected surprises, and talk to your competitors, and you won't miss a beat when the snow falls!

—John Allin is the owner of The Allin Companies, Erie, Pa. The organization uses more than 75 units to plow, move and stack snow. The Erie area regularly receives annual snowfall in excess of 250 inches.

New snow and ice management assn. needs members

The Snow & Ice Management Association opened for business in June with headquarters in Erie, Pa.

The main goal of SIMA is to encourage the participation and affiliation of people who are in the snow and ice management business, whether they are contractors or property and facility managers.

The SIMA is a not-for-profit corporation. Its goals over the next few years include establishing a member newsletter and magazine, and providing information on purchasing, networking, training, general business, subcontracting, safety, legislation and customer management.

For more information on SIMA, phone (814) 456-9550 or write SIMA, 1903 West 8th St., Suite 150, Erie, PA 16505.

The right way to salt

"Sensible Salting," as defined by the Salt Institute, of Alexandria, Va., includes the following:

—personnel training;
—good equipment;
—calibration of spreaders;
—use of automatic controls;
—adequate, covered storage;
—proper maintenance around storage areas;
—attention to environmental concerns.

Only use the amount of salt you need to get the job done, advises the institute. Early application to roads will prevent snow and ice from bonding to the road surface.

Apply salt in a windrow or full width. The institute advises that the application be no wider than the truck that is spreading it. Brine formed from salt and water will run to other parts of the road and will be spread by traffic.

If you've ever wondered how long it takes the salt to start working, the institute estimates it takes 20 to 30 minutes.

Storage

Outside stockpiles should be properly shaped, in either windrows or conical shapes, piled on impermeable pads and covered. Proper drainage will keep the salt dry and protect the surrounding area.

Temporary covers can include:

—tarpaulin; —polyethylene;
—polyurethane; —polypropylene;
—rubberized polyethylene.

Types of under roof storage areas:

—shed; —pole-type;
—quonset; —barn-type.
—dome-type;

The Salt Institute has made available literature on salt for snow and ice control. For more information, contact the institute at 206 North Fairfax St., Fairfax Plaza, Suite 600, Alexandria, Va. 22314; (703) 549-4648.

The micro-nutrients: Fe, Mg, Mn, Ca, Zn, B

It is not usually necessary to apply micro-nutrients to turf. Make sure they're really needed before spending any extra money.

by BILL KNOOP, Ph.D. / Technical Editor

All plants need nutrients to live and grow. The list of plant nutrients is split between those called macro-nutrients—So named because they are used by plants in the greatest amounts—and those called micro-nutrients (Table 1), which plants use in very small amounts.

The fact that plants need such small quantities of each of these six minor nutrients can be very misleading. They are among what are called the essential plant nutrients, because a plant cannot grow and complete its lifecycle without an adequate supply of even one of them. The need for a minor nutrient may be measured in parts per million.

No matter how small, the need of each of these minor nutrients plays a very necessary and vital role in plant growth. It would be convenient if a specific part of the plant growth process could be assigned to each nutrient, but it just doesn't work that way. The roles of these nutrients can be described in a very general way, but truly where and how they function in plant growth is very complex.

TABLE 1. PRIMARY PLANT NUTRIENTS AND THEIR SOURCE

Macro-Nutrients	*Primary Source*
(N) Nitrogen	Fertilizer, Soil
(K) Potassium	Fertilizer, Soil
(P) Phosphorus	Fertilizer, Soil
(S) Sulfur	Soil
(Mg) Magnesium	Soil
(Ca) Calcium	Soil
Micro-Nutrients	*Source*
(Fe) Iron	Soil
(Mn) Manganese	Soil
(Zn) Zinc	Soil
(Cu) Copper	Soil
(Mo) Molybdenum	Soil
(B) Boron	Soil
(Cl) Chlorine	Soil
Others	*Sources*
(O) Oxygen	Water, Carbon Dioxide
(H) Hydrogen	Water
(C) Carbon	Carbon Dioxide

The role of **iron (Fe)** is most easily understood. While not a part of chlorophyll in the plant, sufficient quantities must be present in order for the plant to produce the chlorophyll. Plants that cannot obtain enough iron tend to have yellow leaves, or chlorosis.

Several other nutrient deficiencies can also cause chlorosis, the most important of which is nitrogen. The yellowing caused by a nitrogen deficiency may be confused with an iron-related chlorosis. Nitrogen chlorosis first affects the older leaves and results in an overall pale green-yellow color. Iron chlorosis first affects the newest leaves. The veins in the leaf tend to stay green and the areas between the veins turns yellow. Iron may also play a role in drought tolerance, as well as the plant's ability to take head and cold stress.

Iron chlorosis may be corrected by either applying a product containing iron or by correcting the soil pH. Iron is more available when soil pH is below 6.0, but it becomes limited as the pH increases.

Iron sulfate is the most common remedy for iron chlorosis. If iron sulfate is added to a high-pH soil (over 7.0), it may quickly be changed to an unavailable form in the soil. The best way to make sure iron gets to a plant in a high-pH soil is to use an iron chelate. The chelated form of iron helps keep it available to plants in high-pH soils. In fact, chelated forms of most minor nutrients are available. They are very costly, but it's the only way of making sure the nutrients will get to the plant and not get tied up with other chemicals in the soil.

Magnesium (Mg) is a part of chlorophyll. When it is in low supply, the plant may also end up with yellow leaves. A magnesium deficiency is not very common, but it can become a problem in soils below a pH of 6.0 or over a pH of 8.5. It may be rather difficult to tell the difference between a nitrogen deficiency, an iron deficiency or a magnesium deficiency. The only practical way to correct any chlorosis is to first apply nitrogen and if there is no green-up, apply iron, and finally if those two do not have any effect, then apply magnesium. Two very common sources of magnesium are Epsom salts and dolomitic limestone.

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Manganese (Mn) also is a part of chlorophyll, and its deficiency may result in a chlorosis. Any manganese deficiency is very rate and not usually a problem at all.

The other three minor nutrients, **copper (Ca), zinc (Zn)** and **boron (B)**, are needed in extremely small quantities, so most any soil contains them in adequate amounts. There is a greater chance that these chemicals can reach toxic levels in the soil than because of a low supply.

Testing tips

Many soil testing labs do not routinely test for these minor nutrients. Others may test for them, but only report their levels if they are extremely high or low. If you are concerned about possible minor nutrient problems, get your soil tested but make sure the lab is able to make the determination.

TABLE 2. THE INFLUENCE OF PH ON THE SOLUBILITY OF THE NUTRIENTS REQUIRED FOR PLANT GROWTH

Nutrient	*Most soluble pH range*	*Least soluble pH range*
Nitrogen	6.5-8.0	5.5 and lower
Phosphorus	6.5-7.2	less than 6.5, over 7.2
Potassium	6.5-8.5	6.5 and lower
Calcium	7.0-8.5	6.5 and lower
Magnesium	7.0-8.5	6.5 and lower
Sulphur	6.5-8.5	6.5 and lower
Iron	3.5-6.0	greater than 6.0
Manganese	4.5-6.5	greater than 6.0
Boron	5.0-7.0	less than 5.0, over 7.5
Zinc	5.0-7.0	greater than 6.0
Copper	5.0-7.0	greater than 6.0

A soil test can be a valuable first step when developing any fertility program. Depending on the test selected, it can determine the level of essential plant nutrients in the sampled soil, describe any salt problem, determine the pH and identify the soil's texture class.

The soil should come from the plant's rootzone. In most cases, this is just a few inches deep. The sample should represent a fairly uniform area. A sample shouldn't be made up of soil from a sandy area together with soil from a high clay area. These two soils should be treated separately.

Test tees, fairways separate from greens

On golf courses, greens wouldn't be included with tees or fairways, but soil from all 18 greens could be put together into one sample if all the greens had basically the same construction.

There may be enough variation in soils across a golf course that each fairway can be sampled separately. It even may be that a front lawn will be different from the back.

One single soil test may be of limited value. It's important to know the soil pH because of its impact on nutrient availability. The soil texture class information is needed to determine the rate of material needed to adjust pH.

Table 2 shows the influence of pH on nutrient solubility.

Any minor nutrient problem is fairly rare. Only if soil pH is very high or very low can a problem be expected. Even then it's rare. The only other situation that may suggest any minor element is when plants are grown in nearly pure sand. All-sand putting greens and football fields are areas that may need special consideration in developing the fertility program.

It is not absolutely necessary to automatically apply a fertilizer containing these minor nutrients to most landscapes. This is especially true if the grass clippings are allowed to stay on the lawn. All the nutrients contained in the leaves will be returned to the soil and eventually returned back to all the plants in the landscape. There is no question that when minor elements are needed, they are needed. Just make sure they are really needed before spending any extra money. It doesn't make sense to add extra materials to the landscape that are not needed.

Choosing a lab

If the soil sample was sent to 10 different labs there might be 10 slightly different analyses of the soil. Not all labs have the same analytical equipment nor do they use the same techniques. It does not make sense to compare results from different labs. Pick a dependable lab and stick with it.

Every state has a land grant university with a soil testing lab. Information for soil testing is available from the local office of the cooperative extension service.

Test in January-February

In order to get the most dependable test results possible, test when the system is fairly stable, usually January and February. At these times, the last fertilizer application was done weeks before, and the next application is weeks away.

A soil test every two or three years at the same time of the year should be sufficient. **LM**

[GOLF/GROUNDS]

PAGE 2G ▶
Budget hike good for golf course

PAGE 8G ▶
Eight ways to keep fields in play

PAGE 12G ▶
Four keys to great bunkers

PAGE 14G ▶
Redesign speeds play at Duke

'That mower you're driving costs $25,000. Use with care.'

TERRY McIVER
Managing Editor

While shooting a round of golf this season, I noticed an oil leak on a green. It appeared every five feet or so, and went from one end of the green to the other, aprons included. This was some leak. It trickled along cart paths, fairways and greens. The entire back nine of the course was dotted with oil. That's no way to start a season.

It is just "one of those things" that can happen, and does. People get sick and can't come to work, or they get hurt, or they forget to look for oil leaks, low fuel levels or that tree in front of them. Equipment breaks down and tires go flat.

Daryl Decker, superintendent at Arrowhead Country Club in Ohio (see article on page 2G) likens the mower/operator/golf course scenario to someone driving a BMW around on someone else's $2 million investment.

Mowing can be relaxing and fun work. It can also become monotonous. The mind wanders, and the operator may not always be paying attention.

All you as a manager can do is instruct the operator in safe equipment operation and tell them to keep their eyes open. When accidents happen, or an oil leak is missed, all you can say is, "Please be more careful and attentive." (Which is better than saying, "You're fired!")

Prevention begins at the shop. Decker's mechanic, Bruce Metzger, gets to the shop well before the rest of the crew. He fuels up equipment, and otherwise gets the fleet ready to go. This is also the time to check for loose fittings or split hoses.

Here's another tip: paint equipment bays white. Oil or other fluids will show up better on the white paint.

And—in what could win you the award for grouch-of-the-month—insist that headset radios not be worn by people who ride the large equipment. It just makes good sense.

The show season has begun! Where ya' goin' this year? There's lots of great national and regional shows out there, with information just waiting to be had. Take a look at what's coming up:

The Independent Turf and Ornamental Distributors show is in Naples, Fla., Oct. 16-20;

University of California specialists are looking into better pond and lake management, Nov. 9-10 in Santa Rosa;

The Penn State Golf Turf Conference Nov. 12-14 in State College, Pa., and the New York State Turf and Grounds Exposition is held Nov. 12-15, in Rochester;

The PLCAA/ALCA/PGMS Green Industry Expo is in Cincinnati this year, Nov. 17-21;

The North Central Turfgrass Expo is in St. Charles, Ill. Nov. 27-29.

Need I say more? Wherever you live, there's bound to be a show through the fall and winter within driving distance So don't be a garage potato. Go to a show!

Comments? Write Terry at 7500 Old Oak, Cleveland, OH 44136; **phone him at** (216) 891-2709, **fax him at** (216) 891-2675 or **e-mail him at** 75553.502@compuserve.com. **LM**

More money makes projects happen

A desire to 'make it better' has fueled improved course maintenance and special projects at Arrowhead Country Club.

by TERRY McIVER / Managing Editor

More members...more money. A simple reality of golf course maintenance at work at Arrowhead Country Club in North Canton, Ohio.

"We have really worked to try to present a strong first image as you come to our club," says superintendent Daryl Decker, who has served as lead superintendent here for 11 years.

More money has also enabled Decker to add about seven persons to his summer crew.

"We've known that we needed more people," says Decker. "But then again, we've always been a small club. When I first came here 11 years ago we had 135 members. We're now at 250 members. Some of that is just a natural growth, due to the membership size.

"The new members came along because management realized we needed to increase the budget. We were starting to fall behind in maintenance levels, let alone being able to accomplish the extras. As they realized the need for additional income, they brought in the new members. The past 9 to 10 years have been, 'Let's just maintain it.' Now the attitude is 'How can we improve it?'"

One maintenance need Decker hopes will become a reality is an automatic irrigation system to replace the existing quick-couple system.

Scheduling

Arrowhead uses many high school and college students during the summer. With so much school-aged help, Decker feels it's important to be an understanding boss when it comes to granting worker requests for time off during summer, as long as he knows—at the time the workers are hired—what time off they will need through the summer.

"I understand that this is not their lives," says Decker. "This is what they do for income, to get themselves through school, or to help out at home. I can't bring myself to demand 'You are here from June 1 to September 1!'

"They have football practices, cheerleading, volleyball, church camps, scout camps, a variety of different things they're all involved in.

"I work with them when I hire them on. I try to keep a family atmosphere as we work the crew here. What I ask in return is, on those busy days when I come in and say 'We have to jump,' let's jump."

Workers get an entire weekend off every other weekend.

Decker pays $5.75/hour, a wage that was made possible due to the budget increase.

Sod solutions

Decker has occasionally had to replace larger turf areas with sod, and he agrees that proper soil preparation is essential to eliminate layering.

"If there's any way you can get a couple inches of good, loose soil down there, you've won half the battle," says Decker, who uses bluegrass sod when planting into native soil on banked areas.

He says soil amendments are critical to the success of sodding on harder, clay soils.

"The roots are never going to penetrate," says Decker. "It might look good for a little while, but as soon as you hit a drought or stress time, all the rooting is up in the top layer, because it can never pene-

'I just love the business,' says Daryl Decker, who helps employees balance work requirements with outside interests.

Tips from Darryl:

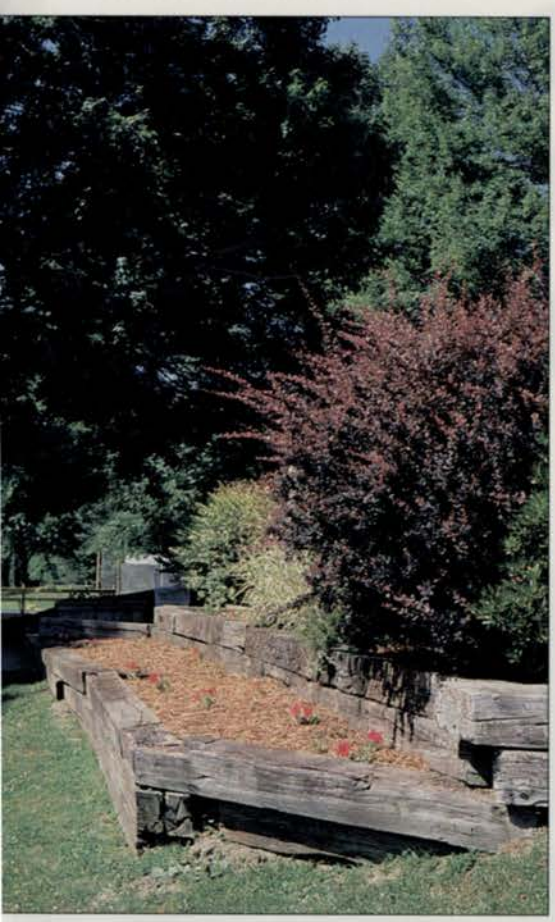
1) Allow flexible hours for summer-only employees.

2) Use soil amendments to help create good, loose soil before installing sod.

3) Place seed-filled repair boxes on par-3 tees.

4) Irrigate deeply, syringe, hand water and use wetting agents to minimize heat stress.

5) Use overseeding mixes in areas of high pythium probability.



trate that hard layer underneath."

Decker uses lots of organic soil amendments when he works with sod; these include peat moss and leaf compost, or porous ceramics such as Isolite and Profile, to help with water retention and to help loosen up the soil.

"If it's a real hard, wet, clay type of material, I'll put in sands, I'll put in organics, something to kind of create a little better soil condition. If I'm already dealing with a good organic soil, I may not add anything but some starter fertilizers down in that root-zone, so that as that root goes down in, it has something to feed off of, instead of a top application. I like it already in the soil, where the root has the ability to work to it. You lose less of the material.

"I've had good results with Isolite and Profile in some greens and tee areas. I also used Isolite on one tee surface, for better water retention, and blended some organics into that.

"We worked all these products through six inches, rolled it, packed it and loosened the top surface back up again to lay sod on it."

Arrowhead's tees are small, which has usually been compatible with the number of rounds played a season, which Decker estimates to be 25,000.

"But with the membership increase, I do have more divot repair to do on par-3 tees. More play means more divots and divot repair." Repair boxes filled with a seed mix have been placed on par three tees.

Weather zigs

The less-than-predictable weather patterns continued in parts of the Midwest this spring and summer, and Decker had to do his best to keep his head above water as far as scheduling and effective maintenance.

"It has not been a typical summer. Spring was wet. Normally, by mid-May, we're on a routing maintenance schedule. This year it was mid-June.

"We had a period from early April through mid-June when there was virtually never a rough cut where there wasn't clumping grass. You'd mow for three days and it would rain for four, so you were starting right back over again with that spring clean-up and spring preparation. We went from that right into 85 degrees and sunny, and now, we're cool again."

Heat stress solutions

When it comes to heat stress, Decker, as all supers do, tries to prevent first, then cure.

"Preventively, we try to prepare the turf for the heat stress. In the spring, we try to establish deep rooting through irrigation patterns of long, deep watering cycles.

"As far as curatives for heat stress, we try syringing,

One of the best things about the staff, says Decker, is that no one takes a 'that's not my job' attitude.

At left, one of the many ways the Arrowhead crew beautifies tee areas.

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Circle No. 109 on Reader Inquiry Card

'We try to keep our crew from being totally overrun with the projects,' says Decker, who installed this ornamental pond (right) with the help of the club professional, Dave Cavalier.

hand watering, the typical things. We were out yesterday with the wetting agent tablets, and some hand watering of the localized dry spots.

"I believe in holding back on nitrogen levels. I don't push the fertilizer regimes. This helps keep the turf real lush during heat times."

Decker does not aerify greens in spring, since play is light.

"We do fall aerification and sand topdressing. That helps wherever we have compaction.

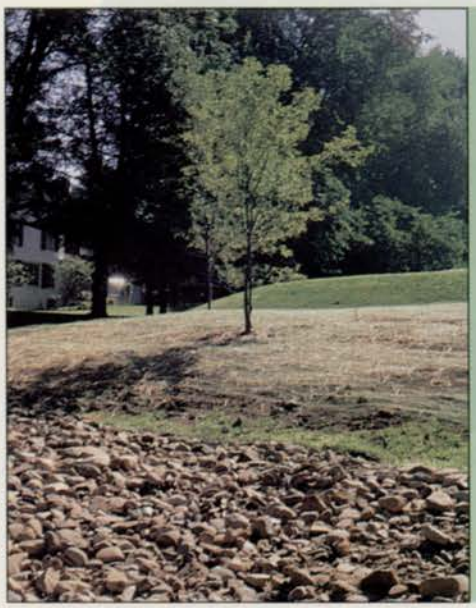
"We try to be a little more conservative with our water because with the type of system we have, we can't go out and randomly throw water around. And in some aspects that may have helped us overtime, because we've tended to take those weaker turf strains out; because of the stress, they go under and it's kind of been a 'survival of the hardiest.'"

Bluegrass/ryegrass

Memories of the Midwest heat wave of 1995 linger, and Decker is careful when choosing turfgrass varieties.

"We shy away from ryegrasses when we do any overseeding on fairways for the simple fact that we are prone to pythium here and the ryes have a tendency to be a little more susceptible to pythium," Decker observes. "So we go with a two- or three-way blend.

Arrowhead's greens are cut at ⅛-inch, six days a week, with walk-behind mowers. □



No more wash-outs

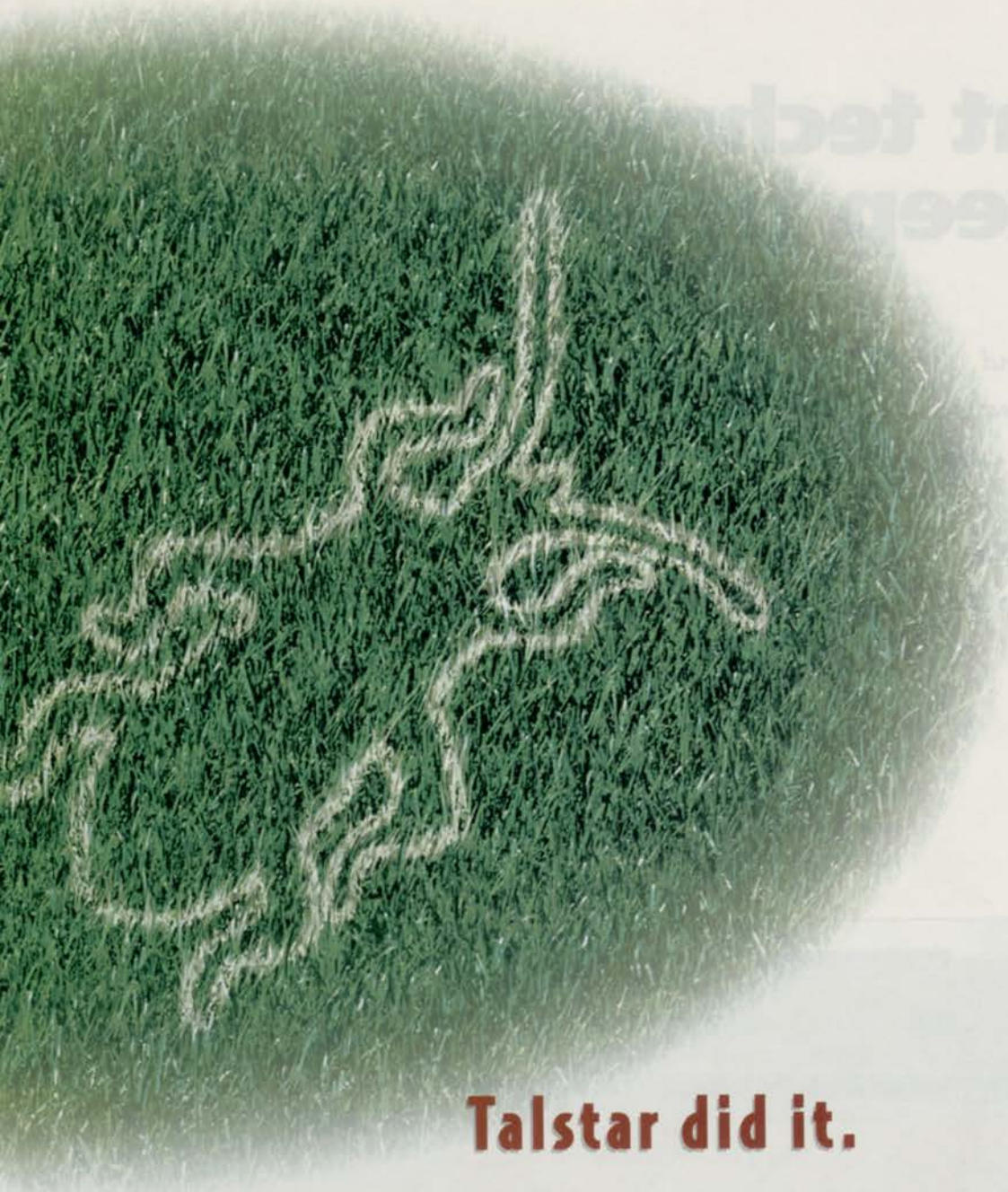
One low-lying section of Arrowhead Country Club was constantly being flooded by heavy rain.

"We had problems with water coming down through here and eroding out. It was getting to be a real problem," remembers Decker. "We would pick up water from the housing development at a higher elevation. Everything from seven or eight acres funnelled right into this spot of runoff. We had caverns form in here from the water running through."

Solution: "We came in with the concept of a dry stream bank. We cut it out, shaped it a little bit, laid a plastic layer down and then put cobblestone in on top of it.

To beautify the area, a perennial wildflower mix was sown in. "We're going to mix bulbs in with that and some of the lilies and hostas," explains Decker. "As you look up this hole next year, there's going to be a mass of wildflowers up behind it.

"Last Sunday we picked up an inch of rain in 15 minutes and that spot had no erosion."



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Circle No. 113 on Reader Inquiry Card

Eight techniques to keep fields 'in play'

by MIKE SCHILLER

Growing demand for field time means all groups must cooperate, when it comes to scheduling. Otherwise, turf quality will decline.

If athletic fields had feelings, they'd be bursting with pride at their own popularity. Most days, it seems that everyone wants them.

Sports turf managers from elementary schools through universities, throughout park and recreation departments, at private facilities and at the professional level face the challenge of maintaining quality playing surfaces despite ever-escalating field use schedules. Here are some techniques to keep fields in play and extend the season:

1) Cooperate

Get everyone on the same page.

Administrators, athletic directors, facility owners, coaches, trainers, players, parents and support groups, be they fans or booster clubs—all want the best possible playing conditions. Sports turf managers need to communicate what is needed to provide those conditions.

Ask for funds, supplies and equipment, and explain why they're necessary and what they'll do for the program.

Work with field user groups to establish guidelines for field use and non-use. Listen to their needs and develop suitable alternatives whenever possible, but keep player safety the top priority.

2) Rotate

Assess the "logic" of current field use schedules.

Work with coaches to shift the positions of the various repetitive player drills performed on football and soccer practice fields. Traditionally, each drill takes place on the same portion of the field each day. Why? It's habit. Soccer

The new natural grass field at Iowa State University—used for soccer and football—replaced a field of artificial turf.

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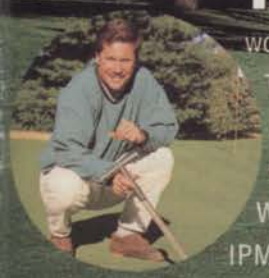

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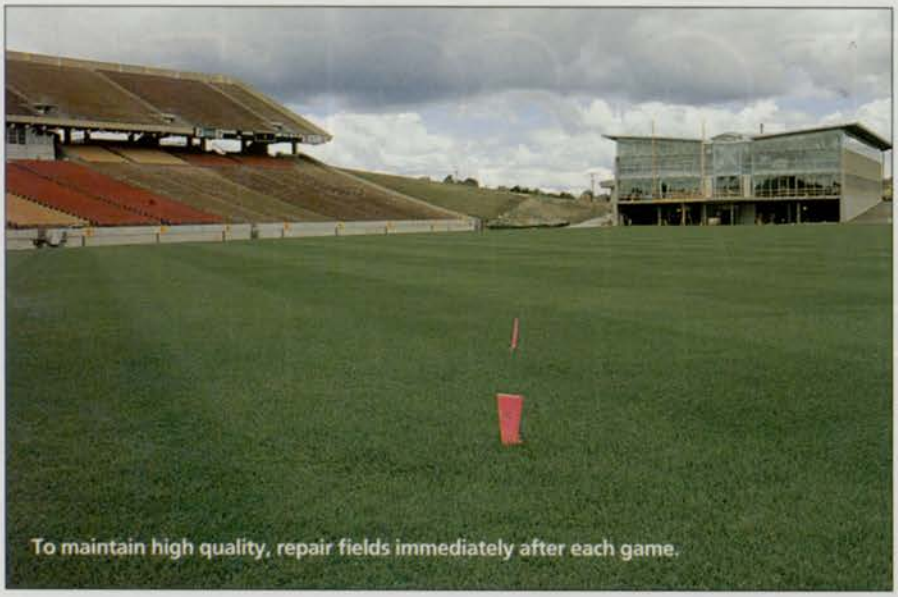

To maintain high quality, repair fields immediately after each game.

goals can be set up along the sidelines, or even on the turf surrounding the field for practice. Only the football kickers "need" a specific spot, and they can even be moved to another field if necessary.

Shift the fields. If space allows, line out two practice fields side by side and parallel to the existing field. Or line the practice fields in the same direction as the existing field, but moved 10 to 20 feet to the left or right.

Save the sidelines. Move players' benches along the sidelines of practice fields for football and soccer from one end of the field to the other, and to the middle, several times during the week to spread the wear and compaction. If possible, tarp the sidelines area for games.

Many parks and small school game fields have movable bleachers on only one side of the field. If space allows, move these to the other side of the field occasionally.

Does the band really need to practice on the game field more than once a week, under the lights? Alleviate wear and compaction by moving daily practices to a lined-out football field grid on a section of a parking lot, lawn, or the outfield portion of the baseball field. Move the grids on turfed areas periodically to avoid damage.

3) Incorporate

Despite precautions, field damage will occur. Repair it quickly.

Schedule crews or volunteers to walk the field immediately following football or soccer games. Equip each person with a pail filled with pre-germinated seed in your standard mix and a small scoop or trowel. Have them place a bit of the mix in each divot hole and reset the divots, stepping down on them gently to anchor them in place. Tackle the larger problem areas yourself, using the same basic procedures. Irrigate the field once the repair task is completed.

4) Correct

Keep compaction under control. Even if suitable pull-behind units are readily available, use a small walk-behind core aerator as often as practical in those heavy use spots between the hash marks and along the goal line of football fields, within the goal mouth and center circle of soccer fields, and along the sidelines of both. Generally, mowing action is sufficient to break up the cores.

Correct small depressed areas and high spots before the next practice or play session. Existing sod can be "lifted" with a shovel or pitchfork, keeping at least one side still attached. The field media below can be either filled in and tamped properly, or shaved away with a sharp spade. Check to assure the soil base is even with the surrounding soil surface and level before easing the sod back into place. Irrigate as necessary to assist re-rooting of the sod "chunk."

5) Compensate

Spread grass seed, slit seed or drill seed frequently during the playing season. Seed in place will germinate when conditions are right to fill in bare spots and thicken the turf. If budgets won't support full-field seeding, concentrate on the high-use spots. Though you'll lose some seed, positive results justify the extra cost.

Supplement regular fertilization programs with special nutrient "packages" tailored to the specific needs of heavy-use fields. Keep potash levels high enough to help turf handle the stress.

6) Protect

Consider tarping to extend the fall playing season as well as to encourage early green-up in the spring. Tarps also can help maintain field playability during rainy seasons and in snowy northern climates. Talk with other sports turf managers in situations similar to your own to compare the initial tarp cost with savings in maintenance repair costs to determine the practicality of tarping for your key game fields.

7) Investigate

Check out new turfgrass varieties. Compare performance of new varieties to your existing turf. It's usually safest to test a new combination of grasses on a practice field under your use schedules and maintenance program for a year before making a switch on the game field. If the game field in enclosed or partially enclosed by bleachers or within a stadium, be sure to consider effects of shaded areas and differences in wind patterns.

Fields wear out quickly when there is no balance between play and maintenance.

8) Re-evaluate

Once the fall-winter playing season wraps up, do as much pre-spring preparation as possible. In northern regions, dormant seeding and fertilization covered with a light layer of topdressing can produce superior turf in the spring, especially when wet spring weather keeps crews off the fields.

You may not be able to incorporate all of these suggestions into your program. But if one or two ideas fit into your budget and time allotments, they can help improve your fields' quality—and the players will appreciate it. □

—Mike Schiller is superintendent of parks for the Rolling Meadows (Ill.) Park District and president of the national Sports Turf Managers Association. Questions about the STMA and its activities can be directed by phoning the national office at: (800) 323-3875.

Shaping up while waiting for rain

Mike Schiller just passed the half-year mark as superintendent of parks for Rolling Meadows, Ill., so he's still getting to know his newest turf. Previously, he was assistant superintendent of the Schaumburg, Ill., park district.

"It takes about a year before you figure out the operation," admits Schiller, who has a big project on his hands with a newly purchased swimming/tennis complex.

"We're making repairs," says Schiller. "It was a private club, now it's a public facility. We've divided two of the tennis courts into basketball courts and a rollerblade rink. The trees had been let go, so we've been pruning, slowly but surely getting it in shape."

The spring and summer weather in northern Illinois has not been friendly to turf and ornamentals.

"This summer has been weird, weather-wise," says Schiller. "It was so wet in spring, then from June on, we had negligible rain. We're seeing a lot of stress. The trees started dropping leaves 30-50 days ago. We're lucky if we had an inch of precipitation for September."

Fortunately, the district's three major football/soccer fields are well-irrigated. The drier fields, however, haven't gotten much attention due to lack of rain.

"We couldn't fertilize in spring due to all the rain, and in summer, we couldn't fertilize anything that wasn't irrigated, because we wouldn't be able to wash the product into the soil."

Schiller manages 175 acres of parks and recreation property. □

—Terry McIver

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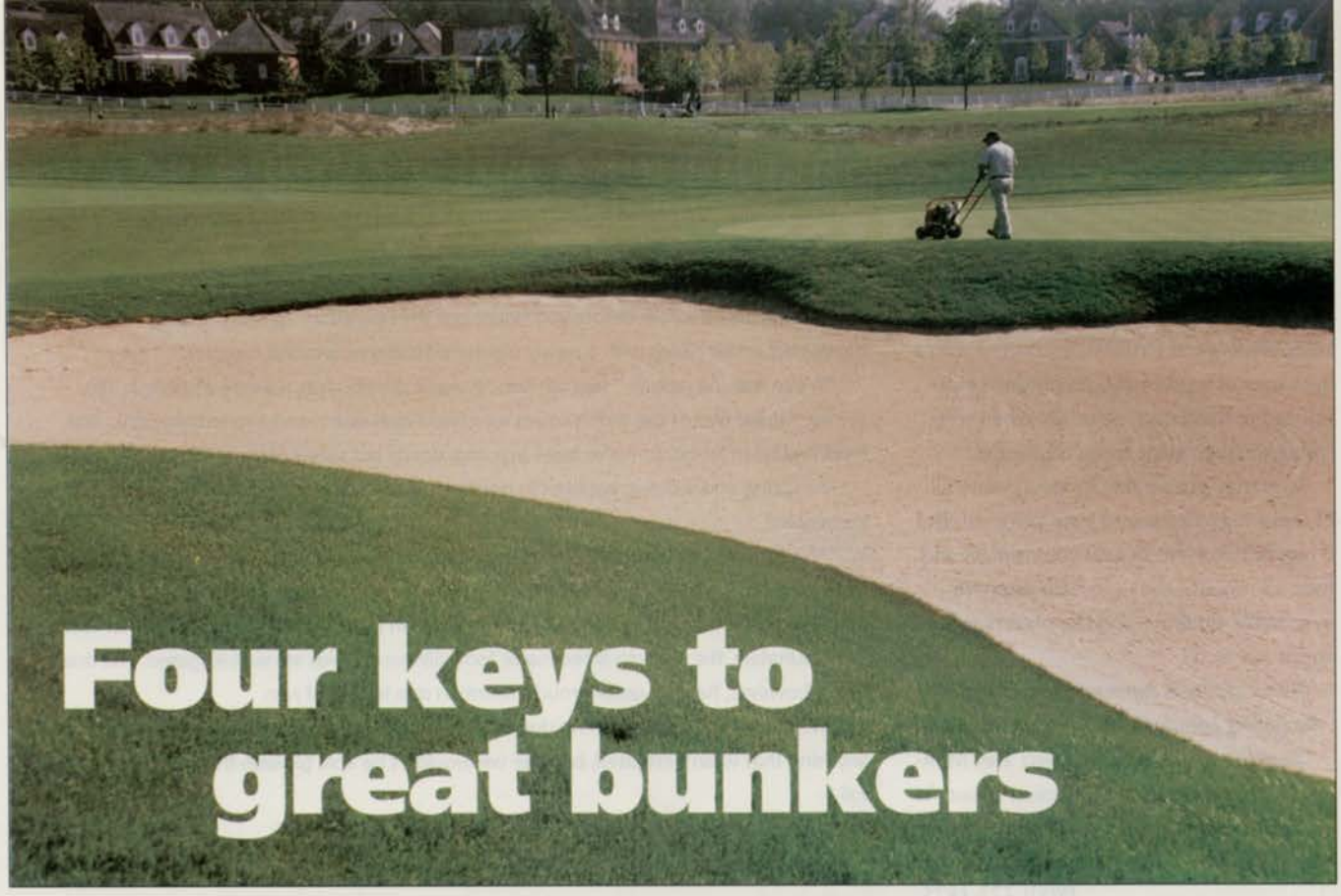


Four keys to great bunkers

Extra care can distinguish your course from run-of-the-mill 18s, and attract new members.

by JERRY ROCHE / Editor-in-Chief

If having to maintain 110 sand bunkers for 27 golf holes doesn't make Tony Mancuso an expert, nothing does.

Mancuso, superintendent at the Jack Nicklaus-designed New Albany (Ohio) Country Club, is—as you might expect—a big fan of bunkers on a course.

"Our bunkers are typical of a Jack Nicklaus design," says Mancuso. "They provide some of the most dramatic features on a golf hole, and—after something like a torrential rain—provide some of the most depressing, disgusting, humbling feelings you as a superintendent can get."

He has four "keys to great bunkers," and they are:

1) construction issues
2) good drainage
3) the correct sand
4) good grooming

Construction issues

Mancuso believes that each bunker must be protected from rain and irrigation water runoff. "Sometimes we forget to berm around the bunkers and make the water go around them," he says.

Nicklaus-designed bunkers are 'flashed,' so golfers don't play blind.

It's also important that machine rakes have several access points around the bunker, to avoid wear areas—even if you have to "give up aesthetics." The golfers must also have several points from which to access the bunker.

The bunker should be designed so that it is "flashed," that is, so the golfer can see the sand in the bunker from his or her previous landing site. Mancuso also prefers bunkers with 1 to 1½ inches of sand on their sloping faces. "When a ball hits the side of a bunker, it shouldn't stay there," Mancuso notes. "The bunker's enough of a hazard as is."

Good drainage

It's a necessity to have an impermeable base in the bunker. Clay should be molded into the bottom of the bunker so water will go through the sand and get to the drains.

The base should also have a "fall" built into it so the water doesn't collect in one or two spots. And the bunker should also drain at its low point(s).

"Don't expect one strip drain to do the

whole job," Mancuso says. "You need to know the elevation and put as many drains in as you can. Don't spare any expense, because it'll save you time and money over the long run."

New Albany Country Club uses regular washed pea gravel under drain tile, then gravel on top. "Some people like to use fabric socks over the tile, but if the fabric clogs up, you have to take it all out," Mancuso observes.

The correct sand

Of prime importance is knowing your suppliers, Mancuso says. "Sand is completely different at every sand plant in the country. Some sand plants are more concerned with the highway market where the big profits are, so they believe that spending a lot of time and money on golf course operations isn't justified.

"There are specific recommendations for golf course sand. You need to identify which sand plants want to work with those specifics; a lot of time those are the plants where the owners play golf."

Color is also a consideration. New Albany's sand is a very pale brown. Sometimes you have to take what's available, but remember that most of the cost of purchasing the sand is in the hauling.

Sand should also be free of silt and clay, be easy to install and have the proper particle distribution.

"Our sand is 98.6 percent pure sand, and we can have up to 3% of clay and silt," Mancuso reveals. "For proper particle distribution, you should check the laboratory specifications. We don't like our sand to crust or set up or bury."

After all else is done, use a power blower to remove silt, leaves and other light debris.

Firmness of sand makes a great deal of difference to golfers. "We prefer firm," says Mancuso, "so we chose a sand that was going to be firm. But we leave the top one inch loose."

Grooming

"Hand raking versus machine raking is always a question," Mancuso notes. "Nothing looks prettier than hand raking, at least the green-side bunkers."

A machine can wear out the grass around the bunkers, creating special maintenance chores along the edges, so New Albany crews always hand rake around the edges. Mancuso also prefers using a clockwise spiral pattern from the edges to the center of the bunker when he must use a machine rake.

Edging is done twice a year using a Redmax reciprocating trimmer.

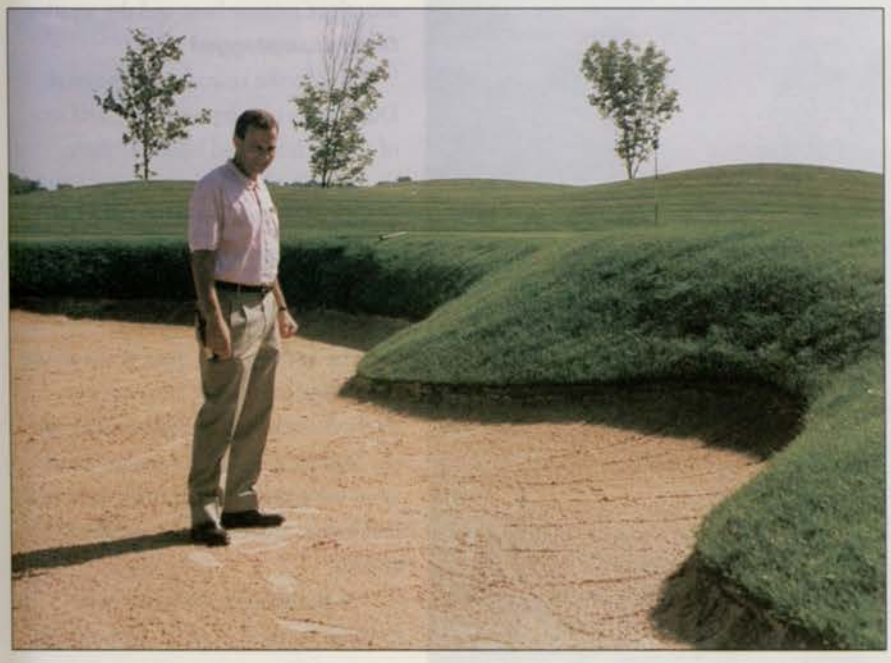
"We only take off the excess grass on the edge," says Mancuso. "We don't want to change the original dimensions of the bunker, and with a Redmax you can't dig into the soil. With something like a spade shovel, you'll have a tendency to go further out into the soil."

Maintenance employees alternate on and off the bunker-raking crews. Everyone gets a turn. But when special events are scheduled, Mancuso prefers to choose his more meticulous workers. "Some people are better at raking bunkers, just like any other job," he notes.

To put the final touches on your bunkers, you should remove silt, leaves and debris with a power blower before raking, Mancuso warns. "Silt will reduce the infiltration rate of water in your bunkers. You've got to take the time to get it off there."

Mancuso has been at New Albany Country Club on the northeastern outskirts of Columbus, Ohio, since construction was begun in 1990. Besides the golf course proper, he also oversees maintenance of a huge driving range, two practice greens, a bentgrass croquet court and two bentgrass tennis courts that receive the same maintenance intensity and regime as the golf course greens. □

'Some people are better at raking bunkers, just like any other job,' says Tony Mancuso.



At Duke: **Improved design, same old weather woes**

The reworking of the Duke University golf course improved play, but changing weather patterns provoked lower fertilizer rates and increased aerification.

by LESLEE JAQUETTE

Better sight lines and reworked fairways made the Duke University golf course faster and fairer, but weather extremes last summer required greens be spoon fed and aerified often.

"The tailor cut a fine suit," is how Rees Jones referred to the Duke University golf course his dad Robert Trent Jones designed in 1957. Seeing it was time for some new "alterations," however, the younger Jones was hired in 1993 to "refine the design."

The reworking cost $2 million, and was completed over an 11-month period.

Duke superintendentEric Shields says the renovation was a "wild" experience, and included some major bulldozer work, greens rebuilt to USGA standards and major fairway improvements. Shields, who was then assistant superintendent, was active in the entire renovation.

The Duke crew usually aerates three greens per day, every four to six weeks.

The goal of the Duke renovation was to repair poor greens drainage and have a course that meets modern standards.

Inconvenience followed, however, with a month of rain followed by a month of intense heat and dry weather.

Greens...unplugged

Prior to the rework, the greens at Duke were not draining well, and nine of the 18 holes had blind tee shots.

"Rees Jones' philosophy was simple," says Shields. "Make the course easier to drive off the tees and more difficult on the greens."

A legion of bulldozers recontoured half the fairways and most of the greens. According to Shields, fairways were ditched out because players could not see landing areas or the greens. Some areas were recontoured to be eight to 10 feet lower, and embankments were added.

On number 11, the green was brought forward close to the water haz-

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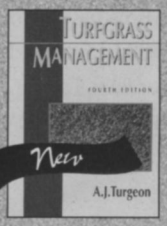

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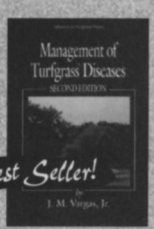

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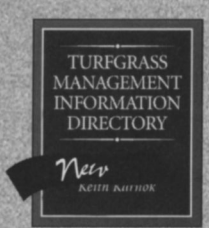

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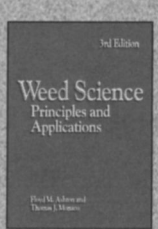

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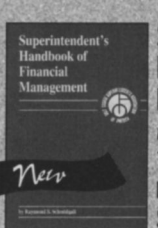

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Shields: aerification reduces algae growth.

ard to make it a more challenging hole.

The renovations have helped to speed up play. A full round takes four and a half hours, with 8- to 10-minute tee time intervals.

Lower fertilizer rates

The weather of the summer of 1995 inspired Shields to fertilize more often, but at lighter rates.

Normally, he says he would fertilize in the spring and fall with no nitrogen in the summer to avoid stimulating roots during the hot, humid summer. Now with sand greens, Shields and his crew have learned that improved drainage can also mean poor nutrient retention. To counter this situation, he plans to apply fertilizer every two weeks, with a quarter pound of nitrogen, and a potassium spray fertilizer in between.

A mid-range fertilizer helps lower maintenance costs. Fans on four holes were run for 24 hours during the heat wave to flush out the stagnant air. This year, Shields was to install fans on four additional greens.

Shields analyzes turf tissue samples monthly, to learn which nutrients might be deficient, and finesse the course through summer.

A side effect of heavy rain followed by a heat spell is algae, which developed on several greens. Because the algae cuts off airflow to the rootzone, Shields has moved to aerifying the greens more often than normal, every four to six weeks, using increasingly smaller tines as summer approaches.

He also uses the Toro Hydroject aerator to aerate without disrupting the turf surface.

The Duke crew usually water aerates three greens per day, so that any one green is aerified every two weeks.

Shields has not identified the source of the algae, but notes that the aerification schedule has kept algae growth to a minimum.

His plan is to strengthen turf health to the point that infestations of this sort are unable to take hold.

Few instructions

Shields manages his staff of 10 with a great deal of flexibility. They know the course so well he doesn't have to supervise very much. He trusts them to do their jobs. He also encourages staff to play golf because he feel they learn to appreciate the course from every perspective.

"I'm lenient, but when it's time to get things done, we all turn out and meet that expectation," says Shields. **LM**

New industry consultant

Charles B. "Bud" White, long an agronomist with the USGA Green Section, now has his own turfgrass consultation company to provide technical and managerial assistance. Also a past national manager of agronomic services for Toro, White will be involved with domestic and foreign projects. Total Turf Services, Inc. is headquartered in Watkinsville, Ga. Phone number is (706) 769-4570. □

Athletic field review

The Sports Turf Managers Association (STMA) has published its fourth annual issue of *Sports Turf Topics*, a compendium of STMA articles. The nearly 40 articles, written by STMA members, have appeared in major green industry journals. To order, call (800) 323-3875. □

GCSAA posts agenda

The Golf Course Superintendents Association of America has proposed a legislative and regulatory agenda for the 1996-97 fiscal year. Federal concerns include the Worker Protection Standard, Environmental Protection Agency, and Americans with Disabilities Act issues. State level topics include pesticide posting and notification and state preemption of local regulation of pesticide and hazardous chemical use, worker safety, wetlands and environmental quality laws.

In other GCSAA news, golfer Ben Crenshaw has been chosen as the next recipient of the association's Old Tom Morris Award, to be presented in February, 1997. □

Golf & wildlife manual due

The United States Golf Association reports that a new book on wetlands management should be published in early 1997. Donald Harker and Gary Libby, environmental researchers in Frankfort, Ky., were awared a grant from the USGA to write the booklet, with the working title of Wetlands Manual for Golf Courses. The illustrated booklet will contain narrative, drawings, case studies and key restoration techniques to help golf course superintendents understand wetlands, and create programs to create, conserve and manage them. The manual is part of the USGA's Wildlife Links program to investigate the relationship between golf and wildlife. □

Jim Tielke, vice president of ice melter sales for **IMC Vigoro,** says the company is ready for winter, with plenty of ice melter products. "The professional side of snow removal is an extremely large market" says Tielke. "Throughout the snow belt, there is a tremendous amount of competition for landscapers." For those fortunate to land some good accounts, says Tielke, "ice melter can be an absolutely marvelous off-season effort." The Winter Haven, Fla. company's *Safe Step* is kinder and gentler to the turf, shrubs and trees that surround walkways.

Textron, Inc., parent company of Jacobsen, has acquired **Bunton Company,** makers of lawn-care equipment for landscape management professionals. "By combining [Jacobsen and Bunton], we will be able to build upon Bunton's established products and distribution channels in the commercial arena by leveraging Jacobsen's leadership position in the golf market," says Herb Henkel, president of Industrial Products for Textron.

The Toro Company reports it will buy the **James Hardie Irrigation Group** for $130 million, a move Toro believes will help its positioning as a "cost effective competitor" in the turf irrigation market. JHI provides irrigation products to residential and commercial markets.

Husqvarna has again designated October as Chain Saw Safety Awareness Month. "We're pleased to have been the first chain saw manufacturer to introduce this special way to highlight key safety messages so critical to our customers," says Husqvarna President David Zerfoss.

RohMid L.L.C., a joint venture between **Rohm and Haas Co.** and **American Cyanamid Co.,** has named John H. Thomas, Ph.D., as manager of the company responsible for marketing the new turf insecticide, RH-0345. The product controls grubs and other soil-borne pests in turf by interferring with insects' normal molting processes. The product is expected to be approved in 1997.

The 10th Annual **John Deere** Team Championship Golf Tournament finals will be held at Pelican Hill Golf Club, Newport Coast, Calif., Nov. 14-17. The tournament is meant to recognize the importance of the people who make up a golf course management team.

Cargill intends to acquire the North American salt production, processing and marketing assets of **Akzo Nobel Salt, Inc.** The companies say they expect to finalize the deal by the end of the year. "This represents an opportunity for Cargill to serve customers' needs worldwide with greater value and a broader spectrum of products," says Charles L. Sullivan, president of Cargill's Salt Division. **LM**

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

BEARD'S NEW BOOK... The "Color Atlas of Turfgrass Diseases" by Dr. James B. Beard is available beginning next month through Ann Arbor Press, P.O. Box 310, Chelsea, MI 48118; phone (313) 475-8787 or (800) 858-5299. The book has more than 450 unique high-quality color photos. Completely rewritten from an earlier book sold in Pacific Rim countries, the book includes all major turf diseases worldwide. Cost is $79.95.

INSECTS, TOO... The all-crop quick reference Insect Control Guide can be purchased for $49.95 from Meister Publishing Co., 37733 Euclid Ave., Cleveland, OH 44094; phone (800) 572-7740. The guide puts product specs at your fingertips in a dictionary-type format. It is edited so you can use the indexes to quickly find data, products (by common and trade name) and definitions.

ANSWERS FOR CUSTOMERS... Responsible Industry for a Sound Environment (RISE) has a new brochure to help lawn care operators better answer customer questions about pesticides. The brochure includes easy to explain information about the EPA regulatory process, pesticide testing, Integrated Pest Management and how pesticides enhance the quality of life and the environment. To receive the free brochure, call RISE at (202) 872-3860; or write to RISE at 1156 15th St., NW Suite 400, Washington, D.C. 20005.

AT TOURNEY TIME... Here's where some of your golf customers might be getting their ideas. "Tournament Tips," published by Golfhouse, offers dozens of tips of how to plan, organize and run a golf outing. Includes information on small local events to major corporate outings. Price is $29.95 plus $4.95 s&h. To order, phone (800) 832-5457.

ON SOILS..."Soil Organic Matter: Analysis and Interpretation" summarizes in 67 pages the current methods of testing for soil organic content, test interpretation, and using results to modify recommendations for field use. Published by the Soil Science Society of America. Price is $24. For members, the first copy costs $20. Order from SSSA HQ Office, 677 South Segoe Rd., Madison, WI 53711-1086; fax orders to (608) 273-2021.

New ice melters protect against corrosion

IMC Vigoro, maker of Safe Step brand ice melter, offers two premium formulations for what the company calls "unprecedented protection against the damaging effects of refreezing and corrosion."

Safe Step Plus 20 and Safe Step Ultra 100 are formulated with calcium magnesium acetate (CMA), a biodegradable chemical deicer first identified by the U.S. Federal Highway Administration as an environmentally sound, low-corrosive alternative to rock salt.

IMC Vigoro reports that these Safe Step formulas are the only commercially-available granular ice melter products to include CMA at effective concentration levels.

Safe Step Plus 20, a potassium chloride-based ice melter, is blended with a 20 percent concentration of CMA, for effective ice melting capability below 0° F, and corrosion reduction of 70 to 80 percent over rock salt. Safe Step Ultra 100 contains 100 percent CMA. According to the company it will not harm vegetation or drinking water supplies.

For more information on Safe Step products, call IMC Vigoro at (941) 294-2567 and mention LANDSCAPE MANAGEMENT, or

Circle No. 292

Four deicers for upcoming winter

Cargill makes four different deicers for different weather conditions.

Magna Melt is a magnesium chloride-based deicer that melts in temperatures up to -26° F. Dyna Melt is solid sodium chloride and magnesium chloride combined with a powerful corrosion inhibitor that melts up to 0° F. Glacier Melt is crystalline solid sodium chloride combined with magnesium chloride that leaves no residue and melts below 0° F. Winter Melt's screened crystals of sodium chloride melt best above 5° F.

More information can be obtained by calling (612) 742-6000; say you saw it here, or

Circle 293

Easy way to lay mulch

Rexius Forest By Products has a new truck-powered, remote-controlled material blowing system called the Express Blower. Developed for landscaping and erosion control, the system

can blow any organic material up to 35 or 40 lbs. per cu. ft. with a particle size of approximately 3 inches and less. This includes decorative bark, sawdust, wood shavings, compost materials and wood mulch. Rate of application is 55 cu. yds. per hour. A 340-foot hose is included with the blower.

To learn more about Rexius products, phone (800) 285-7227 and say you saw it in LM, or

Circle 294

Metal buttons can serve as mini database to track production

A Touch Memory information Button (TMiB) from Agricultural Data Systems that can be attached to virtually any object can provide users with mobile databases.

In the golf/landscape industry, the buttons are being used to track time and attendance of workers, track total time on individual tasks, track vehicle and tool maintenance, and schedule future preventive maintenance, track work in progress, and track route efficiency.

Working in conjunction with the TMiB is the TouchProbe data collector (shown in photo), which can read information from, or write to the buttons. It is available with either 32K or 128K of internal memory.

For more information, phone (714) 363-5353 and mention LANDSCAPE MANAGEMENT, or

Circle 295

No salt in this melter

Melt Man Plus is a revolutionary new ice-melting product that contains no rock salt, yet quickly melts snow and ice at temperatures below 0° F.

A combination of three proven, fast-working ingredients, Melt Man Plus comes in 18- and 40-lb. bags. The product is marketed by Lange-Stegmann.

Want more information? Phone (314) 241-9531 and mention LM, or

Circle 296

Compact snowblower moves 37 tons/hr.

The HS622TA is the newest addition to Honda's self-propelled snowblower line. Powered by a Honda 5.5 hp OHV commercial-grade engine, the compact two-stage machine offers a 22-inch snow removal path, track drive, two forward speeds and reverse all-gear transmission.

The chute adjusts easily and will discharge up to 37 tons per hour to a maximum distance of 46 ft. Also standard is three-position height adjustment. A 12-volt, 50-watt light kit is also available.

For additional information: phone (770) 497-6000 and mention LM, or

Circle 305

Good on slopes

The exclusive patented design of the Kut-Kwick SlopeMaster allows safe mowing on slopes of up to 40 degrees, the company says.

This extra-heavy-duty commercial mower traverses and turns on the slope for efficiency and to prevent erosion, Kut-Kwick officials contend.

The mower is equipped with a 24 hp engine and a choice of 60- or 72-inch deck.

To learn more, phone (800) 248-5945 and tell them you saw it here, or

Circle 297

Control rootzone temperatures

The BioTherm TurfTemp heating turf system is becoming more popular at golf courses nationwide. Its all-inclusive Heat Module Enclosure creates the optimum rootzone temperature and heating efficiency, according to BioTherm Hydronic of Petaluma, Calif.

For more information, phone (800) 438-4328 and mention LANDSCAPE MANAGEMENT, or

Circle 298

Manage now available in Calif.

Manage herbicide has received regulatory approval in California, so it is now approved for all major U.S. turf markets.

Manage selectively controls purple and yellow nutsedge in warm- and cool-season turfgrasses.

For more information, phone (314) 694-2789 and tell them you saw it in LANDSCAPE MANAGEMENT, or

Circle 299

Handle cold temps, hard snow

Husqvarna Forest & Garden's model ST926EC snow thrower is built to withstand some of the coldest conditions and to power through the hardest packed snow.

The dual-stage snow thrower has a 9 hp engine, a clearing width of 26 inches and a Shift-on-the-Go drive system. Besides a remote control chute deflector, the ST926EC also has a light kit, making snow removal as easy at night as during the day.

For more info, phone (704) 597-5000 and say you saw it in LANDSCAPE MANAGEMENT, or

Circle 306

[PLANT DIAGNOSIS]

Two months ago, we asked readers what problems they've had the hardest time diagnosing. Diseases seemed to be the most frequent response.

The best diagnosticians and horticulturists learn something new every time they go on a landscape, it has been said. If such is the case, there's a lot of learning going on in the green industry on a daily basis.

Art Snarzyk, for instance, once thought a problem with some brown turf was a disease, only to find out it was an insect problem.

"I had previously diagnosed and treated fusarium blight symptoms in late summer," Snarzyk wrote, "only to find grubs feeding in these areas in later months."

Fusarium blight appears as completely killed circles in bluegrass turf. It attacks the root, crown and leaf.

Snarzyk of Turf Specialists, St. Peters, Mo., changed his approach not much later.

"I now have customers begin intensive irrigation programs and I recheck the turf. Water keeps the grubs near the surface where they can be detected if present."

Walter C. Chastain of Gibbs Landscape in Smyrna, Ga., had a similar problem on the

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If grubs are killing the turf, they'll be easy to find once you pull back a section of turf.

2.5-acre fescue lawn at the main entrance to the Ravinia complex in Atlanta.

"Over a three-day period in May of this year, 90 percent of the turf lost all color," writes Chastain. "Irrigation was running at 100 percent, and no disease was present. It is a Class A+ property, a six-figure yearly contract and a big-time stress factor."

What did he do? He sought help.

"We conducted a soil profile diagnosis. It indicated extreme compaction. So we used a soil-injected 'Grow Gun' application of a special polymer and microbial spores on a 24-inch grid. Now, at the end of August, the turf is beautiful."

Leslie Wing, grounds supervisor at Central Washington University, Ellensburg, Wash., had problems with fairy ring.

"When I started here, the grounds crew tried everything to get rid of the fairy rings on the infield of the varsity baseball diamond, to no avail," he writes. "They had even tried some detergent to help the water penetrate the area.

"So back in my memory, I pulled out a fact that the rings never cross and if they do cross or get too close to each other, then they die out.

"So if you take part of one colony and put it into another colony, they will wipe each other out. Hey—don't laugh!

"At the start of baseball season, we cut out the sod and replaced the sod and I took chunks from each of the several circles and traded them around. We now have no fairy rings two years later. Try it if you like; it certainly costs less than fungicides."

For their cooperation, each of the three people mentioned here will get official "Landscape Management" caps.

Events

OCTOBER

All month: Golf Course Superintendents Association of America has series of one- and two-day seminars in many U.S. locations. For information, phone: (800) 472-7878.

16-20: International Turf & Ornamental Distributors Association annual conference, Naples, Fla. Phone: Jim Hartnett, (313) 331-7739.

19-21: American Society of Landscape Architects annual meeting & Expo, Los Angeles. Phone: (202) 686-2752.

23-24: Western Nursery & Garden Expo, Las Vagas. Phone: (800) 517-0391 or (916) 567-0200.

26: Women in Horticulture Conference, Seattle, Wash. Phone: Kim Hayes, (206) 367-1836.

27-30: National Institute on Park and Grounds Management conference and show, Minneapolis, Minn. Phone: (414) 733-2301.

NOVEMBER

17-21: Green Industry Expo, Cincinnati (Ohio) Convention Center. Phone: (770) 973-2019.

17-21: ALCA Landscape and Grounds Maintenance Conference, Omni Netherland Plaza Hotel and Cincinnati (Ohio) Convention Center. Phone: (800) 395-2522.

17-21: PGMS Annual Conference, Westin Hotel at Fountain Square and Cincinnati (Ohio) Convention Center. Phone: (410) 584-9754.

17-21: PLCAA Annual Conference, Hyatt Regency and Cincinnati (Ohio) Convention Center. Phone: (800) 458-3466.

'REAL WORLD' I.P.M. WORKSHOPS

LANDSCAPE MANAGEMENT's "Practical Turfgrass IPM" workshop is scheduled for early February in the Columbus, Ohio area. The workshop is designed to give front-line managers the knowledge they need to understand and implement "integrated pest management" at their sites.

Run by "real world" turf managers and IPM implementation specialists, workshop attendees will gain:

—understanding of what Integrated Pest Management is, and isn't;

—how IPM techniques are relevant to a turfgrass management environment;

—how those techniques are implemented to control weeds, insects and diseases.

Interested turf managers may call (800) 225-4569 x709. More details on the workshop will soon be available in future issues of LANDSCAPE MANAGEMENT.

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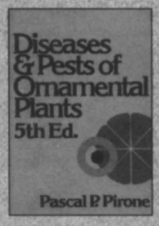

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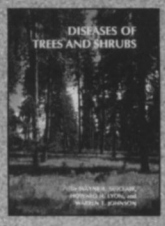

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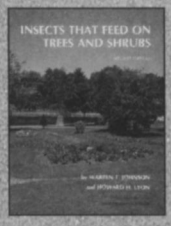

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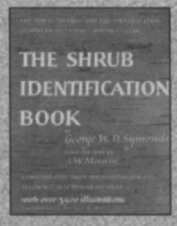

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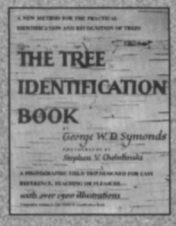

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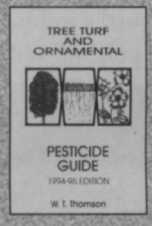

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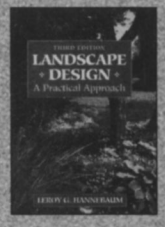

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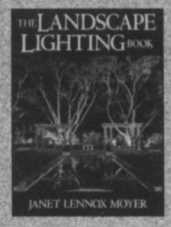

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The next ad closing for

LANDSCAPE management

November 6, 1996
for the December 1996 issue.

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BOX NUMBER REPLIES: Mail box number replies to: *LANDSCAPE MANAGEMENT*, Classified Ad Department, LM Box #, 131 W. First St., Duluth, MN 55802. Please include box number in address.

HELP WANTED

Landscape Operations Manager

Immediate opening with Construction Division of a nationally recognized firm headquartered in Orlando, Florida. Candidates should possess five years commercial experience, familiarity with Florida plant pallet, and strong technical skills in all facets of landscape construction. Responsibilities include managing landscape field personnel through superintendents, routing truck drivers and coordinating with staff members on acquisition of material and other administrative matters. Candidates will need to demonstrate good communication and organizational skills. Excellent salary with generous benefits including vehicle and retirement program. Relocation expenses negotiable. DFW/EOE. Please send resume to Don Parsons 6921 Hanging Moss Road, Orlando, FLorida 32807 or FAX 407/678-8097.

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Send resume and salary history to LM Box 521.

HELP WANTED

Sales Associates

LESCO, Inc. has opportunities for candidates with sales or agronomic backgrounds for our Service Centers and Golf Course Routes. LESCO is a leading supplier of products and equipment for the green industry. Now accepting resumes for the following regions: Northeast, Mid-Atlantic, Southeast, Midwest, West and Southwest.

Send resume to: **LESCO, Inc., Attn: HRSLS, 20005 Lake Road, Cleveland, OH 44116.**

LESCO™

Horticultural Personnel

DuBrow's Nurseries, Inc., a full service Horticulatural corporation, with locations in Northern/Central NJ and Eastern PA, is looking for all levels of management; managers, foremen/women, assistant foremen/women for our growing Grounds Management, Design/Build and Nursery/Growing divisions. Must possess a related college degree, bilingual is a plus. Competitive salary and full company benefits. Please fax resumes to: DuBrow's, attn. Michael Branch, fax: 201-992-6050. EOE M/F.

Join our Team!

Great opportunities for energetic, self-motivated individual for full time sales in the Specialty Ag Market. Interesting and challenging work in No. California for 25 year old distributor. PCA License and B.S. degree required. Excellent company benefits including 401K.

EOE Non-Smoking

Send resume: 1155 Mabury Rd. San Jose, CA 95133-1029

LANDSCAPE ARCHITECT

Award winning nursery in Westport, Connecticut is seeking an accomplished and highly motivated Architect to head-up its landscape division. The position requires at least 10 years experience, progressive design skills, on-target estimating ability and proven sales techniques. This is a job for a pro who can design and organize major landscape installations as well as sell them. Send detailed resume and salary requirements to:

Daybreak Nurseries, 500 Main Street, Westport, Connecticut 06880, Attn: Marilyn

LANDSCAPE DESIGNER/SALESPERSON

Large design/build firm in Louisville, KY, is seeking landscape designer/salesperson. Experience preferred but not required.

Please send resume to P.O. Box 43713, Louisville, KY 40253.

SALES & MARKETING REP

Successful candidates will be involved in new business development and promotion of landscape management and related site services. Directly responsible for estimating, bidding, and sales. Some travel required. Excellent growth potential and benefits are available for qualified applicants.

Qualified candidates should have a horticultural related degree, and/or strong sales record in the landscape industry. High level of communication, interpersonal, and organizational skills are required.

Please send or fax resume to:
Personnel Dept., P.O. Box 110322, Stamford, CT 06911-0322
Fax: (203) 316-5434

Grounds Maintenance and Enhancement Supervisors & Managers

Become a part of one of Maryland and Virginia's fastest growing team of landscape professionals. Come and work for a company that recognizes quality as a daily occurrence and knows that customer satisfaction is a successful driving force.

Positions are full-time with exceptional compensation, benefits, and advancement opportunities. Mail or fax your résumé today to: *Tom Davis*, Bozzuto Lanscaping Company, 15127 Marlboro Pike, Upper Marlboro, MD 20774, Fax No.: 301-627-7011.

MAINTENANCE SUPERVISORS The Brickman Group, Ltd., one of the nation's largest and fastest growing full service landscape companies, has an immediate need in principal cities east of the Mississippi for maintenance supervisors with 2-5 years experience. Brickman seeks energetic, team oriented college graduates with proven leadership, communication and interpersonal skills. Brickman offers full-time positions, excellent advancement opportunities and exceptional compensation and benefits with an industry leader building on a 56-year tradition of uncompromising customer service. For immediate confidential consideration, please send or fax your resume with an indication of your geographic preferences and willingness to relocate to: **The Brickman Group, Ltd., Corporate Office, 375 S. Flowers Mill Road, Langhorne, PA 19047, 215-757-9630, EOE.** 10/96

KT Enterprises, Inc., one of the Metropolitan areas' largest quality oriented landscape companies is seeking applicants for the following positions in Maryland and Northern Virginia: Area Managers to manage satellite offices. Supervisors to manage 3 to 6 landscape maintenance crews. Crew leaders to manage 6 to 24 personnel. KT offers excellent starting salaries, health insurance, dental insurance, 401K, paid holidays and paid vacations. Please call Will Cullen 703/222-0449 Ext. 306 or fax resume to 703/222-0578. EOE/AAP 10/96

Mail Blind Box Replies To:
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LM #____
131 W First St.
Duluth, MN 55802-2065
(Please include box number in address.)

CLASSIFIEDS

HELP WANTED

Chapel Valley Landscape Company, an award-winning and expanding landscape firm in Washington, DC area has openings in our **Water Management Branch** for: **Operations Field Manager, Installation Foreman, Service Technician.** Requires 3 years experience in the irrigation industry, 2-4 year degree in horticulture, supervision and sales experience. Good verbal and written communication skills, design and computer experience preferred. We offer exceptional compensation, training, benefits including 401K. Send/fax resume with cover letter and salary requirements: HR Dept., P.O. Box 159, Woodbine, MD 21797 FAX 301-854-6390 10/96

BRANCH SALES MANAGER National Lawn Equipment, Parts & Accessories Supplier expanding into the Northeast, Mid Atlantic and Southeast. Need articulate individual with retail management experience. Computer literate. Several markets available. Send resume with salary history & requirements to: **Landscapers Supply, P.O. Box 459, Spring Valley, NY 10977-0459.** 8/97

Landscape company seeks top notch manager to revitalize sales & production in Mid-Atlantic region. Searching for dynamic individual with personal fortitude, high career aspirations, plus the drive & desire to create & obtain goals. Excellent opportunity for the right person with proven track record. Salary & benefits commensurate with experience & ability. LM Box 520 10/96

OREGON'S LARGEST COMMERCIAL LANDSCAPE COMPANY located in the Portland Metro area is looking for experienced Maintenance and Construction Supervisors, Forepersons and Irrigation Technicians. Must be self-motivated, team-oriented, industry professionals with good communication & organizational skills. Training and advancement for those who want to be part of the Northwest's Best. EOE. Send resume to: NORTHWEST LANDSCAPE INDUSTRIES, 16075 SW Upper Boones Ferry Road, Tigard, OR 97224 - Or FAX to (503) 620-7592. 10/96

MANAGEMENT TRAINEES WANTED- Kapp's Green Lawn, an established, fast growing company, is seeking management & sales trainees for our Midwest locations (Indiana, Missouri, Ohio & Pennsylvania). Lawn care experience or college credits helpful. Must be able to relocate. Excellent benefits. Starting salary upper $20's. Come work for a company that cares about it's employees! Send resume to **Michael Markovich, Kapp's Green Lawn, Inc., PO Box 9038, Ft. Wayne, IN 46899 or fax resume to 219/432-7892.** 11/96

LANDSCAPE MAINTENANCE SUPERVISORS Scott Byron & Co, a premier provider of residential maintenance services to Chicago-North Shore suburbs has openings due to expansion for experienced supervisors. These are full time, year round positions with excellent pay and benefits. For immediate and confidential consideration, fax or send your resume to: General Manager, 30088 N. Skokie Hwy, Lake Bluff, IL 60044, Fax-847-689-0277. e.o.e. 10/96

Fastest Growing Company in Southern Florida seeks Management and Supervisory Personnel for Pest Control, Lawn, and Termite Control. Excellent growth potential. Full benefits package. All replies strictly confidential. Send resume to: P.O. Box 7011, West Palm Beach, FL 33405-7011. 12/96

BUSINESS FOR SALE

BUSINESS FOR SALE-SOUTH FLORIDA Landscape Design and Build Company. Award winning and profitable. Annual sales $3MM. Established 33 years. Call Inter-American Corporation Acquisition Group Broker - Boca Raton 407-750-9570. 10/97

EDUCATIONAL OPPORTUNITIES

NOW...LEARN PROFESSIONAL LANDSCAPING AND GARDENING AT HOME! Accredited program provides thorough training in all phases of commercial and residential landscaping. Diploma awarded. Free brochure describes program and opportunities in detail. Call 1-800-326-9221 or write Lifetime Career Schools, Dept: LF01X8, 101 Harrison Street, Archbald, PA 18403. 12/96

EQUIPMENT FOR SALE

SPYDERS- New/Used/Rebuilt. Full line of replacement parts and update kits. Kubota, Ruggerini, and Kohler engines & parts. Nichols-Fairfield torque hubs. We repair and rebuild Spyder hydraulic pumps and motors. **FAST SERVICE.** Call or write: Mobile Lift Parts Inc., 5402 Edgewood, Crystal Lake, IL 60012. (800)397-7509, FAX (815)455-7366. 12/96

FOR SALE

BUCKET TRUCK: Hi Ranger 65', 57', 50'. Skyworkers with chip boxes. Asplundh bucket trucks with chip boxes. Asplundh brush chippers. Bean 55 gal. sprayers. Pete Mainka Enterprises, 633 Cecilia Drive, Pewaukee, WI 53072. 800-597-8283. 12/96

GROUND MAINTENANCE FIRM Upper Midwest based year around ground maintenance firm specializing in large contracted property maintenance, mowing, pruning, weed and feed, and snow removal. Revenues exceed $2MM. Experienced staff in place. Outstanding reputation, offers turnkey opportunity with established client base. Reply to LM Box 519. 10/96

LEASE FINANCING

LEASE any type equipment for your business. Call AmeriNet Financial (216)543-3800. 12/96

WHOLESALE DISTRIBUTOR

Needed to market environmentally friendly, liquid, slow-release fertilizer products direct from manufacturer. Ken Franke, P.O. Box 123, Plato, MN 55370; 800-832-9635. 10/96

The next ad closing for
LANDSCAPE MANAGEMENT
November 11, 1996
for the December 1996 issue.
Call Dan Hoke at
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AD INDEX

101 Akzo Nobel Salt Inc 13L
102 American Cyanamid Cv2
103 American Cyanamid . .WCv2
104 American Cyanamid W-2
105 American Cyanamid .W10-11
106 American Cyanamid . .WCv4
107 Badger 6
108 Bandit Ind 71
109 Bayer/Golf 4-5G
110 Brown Mfg 71
111 Ditch Witch 19
112 FMC Corp 7L
113 FMC Corp 7G
114 Finn Corp 71
115 Florantine 11G
121 Green Industry Expo . . . Cv3
116 Honda 15L
117 Kubota Tractor 5
118 Melroe 23
119 New Holland 11L
120 New York Turf 13L
130 Nutramax 9G
122 Sandoz 4-5L
SMR Direct Reg Insert . 65a-d
123 Spraying Devices 71
124 Tee 2 Green Cv4
125 Turfco 16L
126 Walker Mfg 9L
127 Zeneca 3

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Grab Bag

The 10 most-used excuses:

⑩ I forgot.
⑨ No one told me to.
⑧ I didn't think it was that important.
⑦ That's the way we've always done it.
⑥ There's nothing I can do about it.
⑤ I was waiting for an approval.
④ It must be stuck in the mail.
③ That's not in my department.
② My computer was down.
① What memo?

—SOURCE: MID-CONTINENT AGENCIES

Profitable Principles

▶ Every problem is an opportunity. Problems present possibilities.

▶ Smile. Be polite. Don't argue. Don't burn bridges.

▶ Take problems seriously and yourself lightly.

▶ If you are ultimately going to do something, do it now, or as soon as possible.

▶ The only right way to do anything is the way that works.

▶ Effort is important, but don't confuse effort with results.

▶ Efficiency means doing things right. Effectiveness means doing right things right.

▶ Don't try to do it, just do it.

▶ You get what you expect. Expect success.

Humble pie

Lebo the clown? Lebo Newman, owner of Redwood Landscaping, is serious about the quality of service his company delivers to Northern California customers—but he obviously doesn't mind having some fun, too. For instance, last year he and company vice president Dave Penry took 180 cream pies in their kissers—fulfilling a promise that they'd made—after employees worked a record 180 straight days without a lost-time accident. And Newman and Penry had handed out $100 cash bonuses to the employees just prior to the barrage!

Tory Wisdom from British Trade Press:

"Other factors have also militated against the playing of traditional sports [among children], such as the decision taken by many councils of a radical left-wing disposition to discourage games they considered too competitive and divisive."

—ALAN GUTHRIE, EDITOR, PARKS & SPORTS GROUNDS MAGAZINE

Environmentalists on the course:

Percentage of all golfers who belong to "environmental" groups = 41%

...to the National Wildlife Federation = 35%

...to the Audubon Society = 23%

...to Green Peace = 21%

...to the Nature Conservancy = 16%

...to the Sierra Club = 13%

—STATISTICS COURTESY OF DR. FRANK ROSSI, CORNELL UNIVERSITY

Grab Bag is a new LM department that features brief observations and prognostications throughout the green industry. If you have an unusual photo or comment you'd like to share with us, please send it in...

Receive FREE information on products and services advertised in this issue.

LANDSCAPE management

OCTOBER 1996

This card is void after January 15, 1997

NAME _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE (___) _____ FAX (___) _____

I would like to receive (continue receiving) LANDSCAPE MANAGEMENT each month: ☐ Yes ☐ no

Signature: _____ Date: _____

1. MY PRIMARY BUSINESS AT THIS LOCATION IS: (check only ONE in either A, B or C)

A. LANDSCAPING/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

01 ☐ 05 Golf Courses
02 ☐ 10 Sport Complexes
03 ☐ 15 Parks
04 ☐ 20 Rights-Of-Way, Maintenance for Highways Railroads & Utilities
05 ☐ 25 Schools, Colleges & Universities
06 ☐ 30 Industrial & Office Parks/Plants
07 ☐ 35 Shopping Centers, Plazas & Malls
08 ☐ 40 Private/Public Estates & Museums
09 ☐ 45 Condominiums/Apartments/Housing Developments/Hotels/Resorts
10 ☐ 50 Cemeteries/Memorial Gardens
11 ☐ 55 Hospital/Health Care Institutions
12 ☐ 60 Military Installations & Prisons
13 ☐ 65 Airports
14 ☐ 70 Multiple Government/Municipal Facilities
15 ☐ Other (please specify) _____

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

16 ☐ 105 Landscape Contractors (Installation & Maintenance)
17 ☐ 110 Lawn Care Service Companies
18 ☐ 112 Custom Chemical Applicators (Ground & Air)
19 ☐ 120 Tree Service Companies/Arborists
20 ☐ 125 Landscape Architects
21 ☐ 130 Land Reclamation & Erosion Control
22 ☐ 135 Extension Agents/Consultants for Horticulture
23 ☐ 140 Irrigation Contractors
24 ☐ Other Contractor or Service _____

C. SUPPLIERS:

25 ☐ 210 Sod Growers, Turf Seed Growers & Nurseries
26 ☐ 215 Dealers, Distributors, Formulators & Brokers
27 ☐ 220 Manufacturers

2. WHICH OF THE FOLLOWING BEST DESCRIBES YOUR TITLE? (check ONE only)

28 ☐ 10 EXECUTIVE/ADMINISTRATOR: President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant
29 ☐ 20 MANAGER/SUPERINTENDENT: Arborist, Architect, Landscape/Ground Manager, Superintendent, Foreman, Supervisor
30 ☐ 30 GOVERNMENT OFFICIAL: Government Commissioner, Agent, Other Government Official
31 ☐ 40 SPECIALIST: Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
32 ☐ 50 OTHER TITLED AND NON-TITLED PERSONNEL: (please specify) _____

3. SERVICES PERFORMED: (check ALL that apply)

33 ☐ A Mowing
34 ☐ B Turf Insect Control
35 ☐ C Tree Care
36 ☐ D Turf Aeration
37 ☐ E Irrigation Services
38 ☐ F Turf Fertilization
39 ☐ G Turf Disease Control
40 ☐ H Ornamental Care
41 ☐ I Landscape/Golf Design
42 ☐ J Turf Weed Control
43 ☐ K Paving, Deck & Patio Installation
44 ☐ L Pond/Lake Care
45 ☐ MLandscape Installation
46 ☐ N Snow Removal
47 ☐ O Other (please specify) _____

4. WHAT IS YOUR ANNUAL BUDGET FOR EQUIPMENT, CHEMICALS, SUPPLIES? (please check one)

48 ☐ 1 Less than $50,000
49 ☐ 2 $50,000-$100,000
50 ☐ 3 $100,001-$250,000
51 ☐ 4 $250,001-500,000
52 ☐ 5 More than $500,000

101	119	137	155	173	191	209	227	245	263	281	299
102	120	138	156	174	192	210	228	246	264	282	300
103	121	139	157	175	193	211	229	247	265	283	301
104	122	140	158	176	194	212	230	248	266	284	302
105	123	141	159	177	195	213	231	249	267	285	303
106	124	142	160	178	196	214	232	250	268	286	304
107	125	143	161	179	197	215	233	251	269	287	305
108	126	144	162	180	198	216	234	252	270	288	306
109	127	145	163	181	199	217	235	253	271	289	307
110	128	146	164	182	200	218	236	254	272	290	308
111	129	147	165	183	201	219	237	255	273	291	309
112	130	148	166	184	202	220	238	256	274	292	310
113	131	149	167	185	203	221	239	257	275	293	311
114	132	150	168	186	204	222	240	258	276	294	312
115	133	151	169	187	205	223	241	259	277	295	313
116	134	152	170	188	206	224	242	260	278	296	314
117	135	153	171	189	207	225	243	261	279	297	315
118	136	154	172	190	208	226	244	262	280	298	316

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LANDSCAPE management

OCTOBER 1996

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NAME _____
TITLE _____
FIRM _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
PHONE (____) _____ FAX (____) _____
HAVE A SALES REP CALL ME 18 ☐ (A)

I would like to receive (continue receiving) LANDSCAPE MANAGEMENT each month: ☐ Yes ☐ no

Signature:_____ Date:_____

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30 ☐ 30 GOVERNMENT OFFICIAL: Government Commissioner, Agent, Other Government Official
31 ☐ 40 SPECIALIST: Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
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44 ☐ L Pond/Lake Care
45 ☐ M Landscape Installation
46 ☐ N Snow Removal
47 ☐ O Other (please specify)_____

4. WHAT IS YOUR ANNUAL BUDGET FOR EQUIPMENT, CHEMICALS, SUPPLIES? (please check one)

48 ☐ 1 Less than $50,000
49 ☐ 2 $50,000-$100,000
50 ☐ 3 $100,001-$250,000
51 ☐ 4 $250,001-500,000
52 ☐ 5 More than $500,000

101	119	137	155	173	191	209	227	245	263	281	299
102	120	138	156	174	192	210	228	246	264	282	300
103	121	139	157	175	193	211	229	247	265	283	301
104	122	140	158	176	194	212	230	248	266	284	302
105	123	141	159	177	195	213	231	249	267	285	303
106	124	142	160	178	196	214	232	250	268	286	304
107	125	143	161	179	197	215	233	251	269	287	305
108	126	144	162	180	198	216	234	252	270	288	306
109	127	145	163	181	199	217	235	253	271	289	307
110	128	146	164	182	200	218	236	254	272	290	308
111	129	147	165	183	201	219	237	255	273	291	309
112	130	148	166	184	202	220	238	256	274	292	310
113	131	149	167	185	203	221	239	257	275	293	311
114	132	150	168	186	204	222	240	258	276	294	312
115	133	151	169	187	205	223	241	259	277	295	313
116	134	152	170	188	206	224	242	260	278	296	314
117	135	153	171	189	207	225	243	261	279	297	315
118	136	154	172	190	208	226	244	262	280	298	316

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LM

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'Penn Pals' at the 1996 PGA Championship

Eighteenth hole, Valhalla Golf Club, Louisville, Kentucky

Penncross and PennWay are Part of the Picture at the 1996 PGA

"We have always maintained high standards at Valhalla. Penncross creeping bentgrass greens and PennWay blend fairways and tees are some of the perks our members enjoy. Touring pros also expect the best fairways and greens, and our bents will accommodate them.

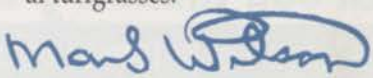
Turf preparation began in fall prior to this golf season. Our plan was to have the turfgrass healthy and ready the fall before the tournament, so we encouraged growth with an aggressive renovation and fertilization program before our cold temperatures came.

The PGA is August 5-11, typically a difficult time of year for cool-season grasses. Louisville is past the extreme edge of bentgrass adaptation. You'll find more bermuda- and zoysiagrass fairways around here, but the Penn bents perform like warm season grasses for us when it's really hot. The bents are especially aggressive and repair ballmarks, spikemarks, and divots quickly. We *do* take extra care to keep them from overtaking bunker faces and encroaching on our roughs. As far as disease pressure and turf vitality, the Penn bents have been a good choice. We grow ryegrass, Kentucky bluegrass, fine and tall fescues in the roughs.

Valhalla opened in 1986. I've been here since 1988 and have experienced very little *Poa annua* even though it's a problem in the area. A good maintenance program and aggressive bents seem to control it, but we are seeing more signs of the persistent nuisance.

Our greens are mowed at 1/8" all year. I don't change the height of cut, but I will change from a grooved to solid roller in the summer. For the PGA, I want the greens to be 'the Beast'. I want to take them to the edge. To go along with the Jack Nicklaus course design, the greens need to test the best players in the world. More so than the roughs or anything else.

I'm proud to be a part of the PGA Championship here at Valhalla. Preparation for a Major is much simpler with a spectacular course, great people, and exceptional turfgrasses."



Mark Wilson, CGCS, Supt.
Valhalla Golf Club
Louisville, KY

Call or fax today for a FREE copy of 'Penncross and PennWay at the 1996 PGA Championship' and for the Penn Pals dealer nearest you.

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